

SUPPLEMENTARY CONDITIONS

GENERAL CONDITIONS

The "General Conditions of the contract for Construction" A.I.A. document A201 twelfth edition, April 1970, Articles 1 through 14 inclusive, is a part of this contract and is incorporated here in as fully as if here set forth.

SUPPLEMENTS

The following supplements modify, change, delete or add to the General Conditions. Where any part of the General Conditions is modified or voided by these Articles the unaltered provisions of that part shall remain in effect.

Article 4-16-1 (add)

Remove broken or scratched glass and replace with new glass, remove paint droppings, spots, stains and dirt from finished surfaces and clean plumbing fixtures, hardware, floors and equipment. Contractor shall keep interior of the building free of stored or unattended combustible material.

Article 11-3-6 (add)

In waiving all rights of recovery under terms of this paragraph, the term "owner" shall be deemed to include his employees and the Architect and his employees as the owner's representatives as provided for in the Contract Document.

Article 11-3-9 (add new sub-paragraph)

Contractor shall not commence work on the site until two copies of all insurance policies attesting that the required coverage is in force have been received and accepted by the owner.

ARTICLE 9.3.1

ARTICLE 11.1.1

ARTICLE 11.3.1

} SEE DESCRIPTION IN App. #1.

GENERAL REQUIREMENTS (DIVISION)

01A10 SUMMARY OF THE WORK (Section)

Furnish the labor, material, equipment and service to construct an Office Building located on [REDACTED]

[REDACTED]. All work shall be in full compliance with the Contract Documents and [REDACTED] Building Code.

01A20 Galvanic Isolation (b)

Provide black point or other electrical isolation where dissimilar metals other than stainless steel come in contact or where metals contact concrete, masonry work or soil with the execution of re-inforcing steel, anchors or other steel fully embedded in concrete or masonry.

01A30 Workmanship

a) Install items in accurate location, plumb, level, square, parallel, straight, flush, in plane, true to shape and neat. Typical tolerance 1/8 in 10'-0".

b) Check the work of each trade for soundness of construction, location, workmanship and other suitability and proceed only after all imperfections have been eliminated.

c) Use necessary suitable shims to secure lines and planes and brace and secure lines temporarily and permanently as conditions require.

01B20 ALTERNATIVES (Section)

01B21 Deduct

In lieu of the PPG spandrilite section described in section 08950 install a bronze aluminum faced insulated panel. **OR KAWNEER VENTROW**
SEE SH. A3

01B22 Add

In lieu of the marblite specified in 09100 stucco shall be used as described in 09100 and it shall be painted with two coats of Sherwin Williams Hi level exterior latex after a first coat of Bloc-Text. Color to be selected later.

01B23 Deduct

In lieu of the quarry tile as described in 09300 and 02600 broom finish the concrete and paint two coats of Serwin Williams. First coat Sherwin Williams concrete floor primer and sealer. Top coat Sherwin Williams floor enamel flat.

~~01B23~~ **ADD - COMPLETION TIME OF 150 CALENDAR DAYS.**

01C00 PROGRESS AND PAYMENT (Section)

01D00 SUBMITTALS (Section)

01D01 Submit five (5) copies of shop drawings. The following items require shop drawings.

01D02 Hand rail front and rear.

01D03 Door frames

01D04 Store front

01D05 Kitchen and laboratory cabinets

01D06 Irrigation system

01D07 Louvers for the electrical room

~~Record~~
01D08 Asbuilt drawings

Add #1.

01E00 TESTING LABORATORY SERVICES (Section)

01E01 Testing by an independent laboratory will be required on the following areas

01E02 20'-0" borings under the proposed structure

01E03 Concrete cylinders of each concrete pour

01F00 PROJECT CLOSE OUT

01F01 Deliver to owner all keys, wrenches, manufacturer's installation and maintenance instructions, templates, warranties and guarantee bonds and other items that come together with apparatus.

02000 SITE WORK (DIVISION)

02A10 ~~SUBSURFACE EXPLORATION~~ (Section) ~~DELETE~~
Provide test results from an independent testing laboratory for three (3) 20'-0" deep borings under the proposed structure. (See division 01400)

Add #1

02B00 CLEARING (Section)

02B10 Perform all necessary clearing and grubbing, remove all debris and refuse from the site and properly dispose of same.

SEE ADD #1
FOR THIS
SECTION

02B12 Protect and maintain trees and shrubs indicated to remain.

- 02B13 Protect and maintain all existing physical improvements indicated to be retained including bench marks and other reference points.
- 02B50 DEMOLITION (Section)
- a) Furnish all labor and equipment necessary for demolition of existing structure as required. Obtain and pay for all permits relative to this work.
 - b) Notify applicable utilities companies and arrange for safe cut-off of all facilities and protect all remaining facilities from damage.
 - c) Provide protection for adjoining property and public improvements which may be affected by this work.
 - d) All existing structures shall be removed in its entirety including footings, sub-surface storage tanks, utilities unless specifically noted to remain on the plot plan.
- 02C00 EARTHWORK (Section)
- 02C10 SITE GRADING
- a) Perform all grading whether fill or excavation, as required to establish rough grades. Rough grade shall be 4" below finish grade and yard raked loose of rubble.
 - b) All grades shall slop away from the building using a slope of 2" in ten feet.
- 02C20 Excavation
- a) Carefully layout all work. Perform all excavation as required for foundations, footings, piers, terraces, walks, curbs, grade beams.
 - b) All footings, foundations, etc. shall rest on natural existing undisturbed soil or on compacted fill tested as hereinafter specified. Excavation bottoms shall be level, true to size, clean and free of loose materials.
 - c) Excavations shall be formed in all cases unless in the opinion of the architect square and true sides can be maintained during the placing of concrete.
 - d) If trash dumps, soft places or insufficient bearing is encountered which would necessitate deeper excavation or wider footings, the architect may order additional excavation. If so, this will be classified as extra work and paid for in accordance with the general conditions.
 - e) During excavation, if suitable bearing is encountered at elevations different than shown, the architect may direct the raising of footings or foundations. This will be classified as a savings to the owner.
 - f) Trenching and backfilling for utilities, plumbing, electrical and mechanical work is not included in this division. (See division 15 and 16)

02C30 Backfill and Compaction

DELETE

*SEE ADD. #1
FOR NEW
SECTIONS*

- a) All fill shall be minimum 60% sand. Organic material not more than 5%. Free of trash, ball bearing sand or other material that will not compact into a suitable fill. All wastage shall be removed from the site and disposed of by the contractor.
- b) Fill and backfill shall be compacted to a minimum of 95% of maximum density at optimum moisture as determined by ASTM D1557, method B. The contractor shall provide the facilities to bring the soil to the proper moisture content. All fill areas shall be compacted in layers of not more than 8".
- c) All defective areas where the density is less than specified shall be recompact, or unsuitable material removed at the contractor's expense.
- d) The usual test may be ordered and paid for by the owner. Re-testing, if required due to the improper compaction or the use of improper materials, will be charged to the contractor.

02C40 Finish Grading

- a) Top-soil: deposit top-soil and wet down to levels of finish grades as indicated on the drawings. After grading two ways, the minimum depth of the top soil shall be 4".
- b) Slope away from the building and elsewhere as required for proper drainage using a slope of 3" in ten feet.
- c) Finish grade shall be left in satisfactory condition for landscaping.

02D00 SITE DRAINAGE (Section)

- a) All drainage structures shall be built in accordance with information on the mechanical and electrical site plan.

02E00 PAVEMENTS AND WALKS (Section)

02E10 Asphalt Pavement

- a) Sub base shall be scarified to a minimum depth of 2", rolled with a street roller, leveled, watered and rerolled to produce a dense unyielding mass, yielding at least 97% density.
- b) Base shall be clean crushed limerock, placed to a depth of 8" and compacted to 6" thickness, carefully leveled and rolled to the grades indicated on the drawings with an eight to ten ton steel roller. The compacted base should resist the penetration of a 6" screw-driver pushed by hand.
- c) Prime the slightly moist surface with cutback RC asphalt at approximately .10 gallons per sq. yd. and at a temperature of 120-150 degrees F. Cover primer with sand and allow to cure for at least one week. Traffic rolling on sand may be permitted to speed up curing.
- d) Sweep away sand and install a minimum of 1" type 2 State Road Department specification asphalt mix topping. Hot method with 2000lbs. field stability test while being mixed, using the Hubbard method. Furnish affidavit from the supplier as to compliance with the speci-

cations.

e) Provide final rolling with a weighted traffic roller. Check for paving faults and for excessive pockets and repair as required.

f) Conform all edges to the drawings and construct a true and clean cut. Provide a uniform slope to drainage points as provided.

02E20 Curbs and Walks

a) Concrete curbs and walks shall be constructed as shown on the drawings and herein specified in division 3. Concrete except as herein modified (minimum road mesh 6"X6" 10/10).

b) The main entrance ramp shall have a mud bed and quarry tile finish as specified herein division 9 - Finishes. Locate a Bituminous joint in the concrete ramp front and rear at change in slope.

02E30 Pavement markings

a) The pavement shall be painted with quick drying, white paint and shall conform to A.A.S.H.O. Department specifications in accordance to site plan. The paint shall be applied at the rate of 1 gallon per 700 lineal ft. of line.

02F00 SITE IMPROVEMENTS (Section)

02F10 Irrigation system

a) An irrigation system shall be provided for all grass and landscaped areas. Provide shop drawings and pump size.

b) Provide a 20'-0" deep well and a pre-cast concrete enclosed pump with remote timer.

c) If domestic water is used in lieu of a well for the irrigation system, provide a separate meter.

02G00 LANDSCAPING (Section)

a) Provide all landscaping material and install in accordance with the site plan. The landscaping contractor shall guarantee the plant material for a period of one year.

03000 CONCRETE (DIVISION)

03A00 CONCRETE FORM WORK (Section)

03A10 General

a) Furnish and erect all form work, shoring and form work accessories rigid enough to support imposed loads without sagging or displacement and sufficiently tight to prevent leakage.

b) The latest edition of the American Concrete Institute publication ACI 347 Recommended practice for concrete form work and [REDACTED] Building Code.

25X1A6d

- c) The contractor is responsible for the adequacy of forms and shoring and for safe practice in their use and removal.
- d) Build in all grounds, nailing blocks, inserts and other wood required to be set in forms.

03A20 Materials

- a) Wood forms: unless otherwise indicated, all concrete surfaces shall be formed with 3/4" exterior type, grade B plywood. Sides of footings shall be formed with wood. Other material will be considered subject to the written approval of the architect. Membranes under slab formed at grade or on fill shall be 6 mil polyethylene.

03A30 Execution

- a) Forms shall produce members conforming to the slope, lines and dimensions of the concrete as indicated on the plans.
- b) Provide temporary openings for cleaning and inspection at the base of vertical forms and elsewhere as necessary.
- c) Provide membranes under all slabs formed at grade or on fill. Lap 6" in the direction of spreading concrete.
- d) Finished concrete work shall meet special tolerances for installation of pre-cast work where required.
- e) Form removal shall be in accordance with the following schedule
Walls, columns and sides of beams: 24 hours.
Beams and Slabs: 3 days minimum or minimum compressive strength of 3000 PSI.
Beams and Slabs: Carrying construction loads shall be re-shored for a 14 day period.

03A40 Construction and Expansion Joints Section

- a) Slabs on Fill: Provide key way construction joints at maximum 30 ft. spacing in both directions except where closer spacing is indicated. Remove form after pour and pour adjacent areas no sooner than 24 hours.
- b) Other joints: Joints, except for those shown on the plans will not be permitted unless approved by the engineer. Before pouring concrete adjoining construction joints, roughen the surface of the portion already poured and give it a heavy coat of neat cement grout.

03B00 CONCRETE REINFORCEMENT (Section)

03B10 General

- s) Furnish and fabricate all reinforcing steel, mesh, reinforcing accessories and positioning devices.
- b) The latest edition of the American Concrete Institute publication ACI 315 Manual of Standard Practice for detailing reinforced concrete structures and [REDACTED] Building Code.
- c) Prepare and submit to the architect, five (5) copies of the fabrication drawings. No steel shall be fabricated before the shop drawings are approved.

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03B20 Materials

- a) Reinforcing steel: Deformed bars, new billet stock, USA manufacture ASTM A615 grade 60, except #2 bars ASTM A615 grade 40.
- b) Mesh: ASTM A185
- c) Reinforcing accessories: Accessories shall conform to the bar support specifications contained in Manual of Standard Practice of the CRSI. They shall be adequate in design and number to rigidly support the reinforcing steel with the cover indicated. Legs of all accessories shall be turned up and shall be heavily coated with a thermoplastic applied by dipping to give a minimum thickness of 1/16 inch for a depth of at least 1/2 inch. Coating shall be of such quality that it does not deform during use. For slabs on grade and for footing reinforcement, bars or mesh shall be supported on precast concrete blocks. Spaced at intervals required by size or reinforcement used to keep reinforcement the minimum height specified above the underside of slab or footing.

03B30 Execution

- a) Fabrication: Fabricate reinforcing steel as indicated and in conformance with the Code of Standard of the CRSI. Splices in reinforcing will be permitted only where indicated on the drawings. Unless otherwise indicated, mesh shall be lapped 6 inches, bars designated as temperature bars, 12 inches; and all other bars, 36 bar diameters but no less than 18". Stop mesh at construction joints in slabs on fill
- b) Setting Reinforcing: Accurately place and firmly anchor in position all reinforcing bars, mesh and all inserts, bolts, anchor and other devices required to be set in concrete. Splices in mesh and reinforcing shall be as specified under "Fabrication" except as otherwise indicated on the drawings. Field bending and offsetting of reinforcing will not be permitted. Reinforcement shall have 3" cover in footings 2" cover on main reinforcement in columns, 1 1/2" cover in beams, and 3/4" clear cover in slabs above grade unless otherwise noted. At outside corners of concrete beams provide #4 X 4'-0" corner bars at same spacing as horizontal reinforcement in beams. Provide dowels in footings of same number and size as vertical column reinforcing and lap 32 bar diameters. Bottom of dowels shall be a standard 90 degree ACI hook at top of footing reinforcement.

03C00 CAST-IN-PLACE-CONCRETE (Section)

03C10 General

- a) Furnish place finish and cure all concrete
- b) The latest edition of the American Concrete Institute ACI 318 Building Code Requirements for reinforced concrete, ACI 614 Recommended Practice for measuring, mixing and placing concrete and the [REDACTED]
- c) Delivery Tickets: Delivery tickets for ready-mixed concrete shall provide the following information: Date, producer, type and brand of cement, strength classification, time dispatch, name and quantities of admixture.

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25X1A6d

- d) Test to determine compliance with the specifications will be done by an independent testing laboratory selected by the owner and paid by the contractor. Test results shall be mailed to the Architect and Engineer.
- e) The laboratory shall make tests for compressive strength in accordance with ASTM C39. There will be five (5) test cylinders for each 50 yards or fraction thereof poured. One test shall be made at 3 days, one at 7 days and one at 28 days.
- f) Concrete failing to comply with the aforementioned tests will be rejected and replaced by new work at no expense to the owner.
- g) The following information is required to be furnished to the architect *as described in (e)*

add #1.

03C20 Materials

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- a) Cement shall conform to ASTM C150 type 1
- b) Aggregates shall conform to ASTM C33 and with grading requirements of the [REDACTED].
- c) Water shall be potable
- d) Chemical admixtures shall conform with ASTM C494 type D. The following admixtures are approved:
- | | |
|---------------|-----------------------|
| Daratard HC-F | by W.R. Grace Co. |
| Plastiment | by Sika Chemical Co |
| Retardwell | by Johns-Manville Co. |
- e) The concrete shall be ready-mixed conforming to ASTM C94 and shall be placed within 90 minutes of the time mixing has begun.
- f) Class 4000 shall be regular weight concrete testing a minimum of 4000 PSI at 28 days. Class 4000 shall be used for all concrete except footings, slabs on fill and planters which may be class 3000. Class 3000 shall be regular weight concrete testing a minimum of 3000 PSI at 28 days.
- g) Slump: The slump just prior to placing shall be 4 inches within a tolerance of plus or minus one inch.
- h) Provide concrete lintels as follows over all openings in masonry wall unless otherwise shown on the drawings
- 8" Masonry Walls
- | |
|---|
| Spans of 3'-0" to 5'-0", 8"X8", 2 #4, top and bottom |
| Spans of 6'-0" to 8'-0", 8"X12", 2 #5, top and bottom |
- i) Membrane curing compound shall conform to ASTM C309; Type 4 shall be used for floor slabs to be covered with composition on resilient floor covering and for roof slabs. Type 2 or 3 shall be applied in accordance with manufacturer's.

03C30 Execution

03C31 Conveying and Placing

- a) Preparation: Forms shall be thoroughly clean and damp. Runways for transporting concrete shall not rest on reinforcing steel.
- b) Inspection: Notify the engineer and request a specific time for inspection of formwork and reinforcement for portions of the concrete work to be placed. Such notification shall be given 24 hours prior to time inspection is desired. No concrete shall be ordered to be placed

until the entire portion of the work to be done has been completely inspected and final approval has been given by the engineer or architect.

c) Placing: All concrete shall be placed in the dry. No concrete shall be placed later than 90 minutes after mixing has begun. Deposit concrete in its final position without segregation, rehandling or flowing.

d) Vibration: Spade and vibrate with approved mechanical vibrators to maximum subsidence without segregation, Vibrate bars to insure bond with concrete.

e) Walls and Columns: The rate of pouring walls and columns shall be carefully regulated so as not to impose undue loads on the formwork. Columns and walls shall be allowed to set for a minimum of 12 hours after completion of the pour before beams or slabs supported thereon are poured.

03C32 Finishing

a) General: All Concrete which is honeycombed or otherwise defective areas and tie holes shall be patched with cement mortar by the same composition as that used in the concrete. ~~No~~-patching honeycombed ~~or~~ defective areas shall be out out to solid concrete, but to a depth ~~of~~ not less than one inch. Edges of the cut shall be perpendicular to the surface. The area to be patched and the area at least six inches adjacent thereto shall be saturated with water before placing mortar. The mortar shall be mixed approximately one hour before placing and shall be remixed occasionally during this period with a trowel without the addition of water. A grout of cement and water mixed to the consistency of paint shall then be brushed on surfaces to which mortar is to be bonded. The mortar shall be compacted into place and screeded slightly higher than the surrounding surfaces. Patches shall be finished to match adjoining surfaces after they have set for an hour or more. Patches shall be cured as specified for concrete. Repairs shall be made by means of pneumatically applied mortar when, in the judgement of the engineers, it is necessary.

See Add. #1
FOR NEW
SENTENCE.

b) Formed Surfaces: All fins and other projections shall be carefully removed and abrupt irregularities shall be leveled. Surface pits having a dimension greater than 1/8" shall be patched as specified herein.

c) Broom Finish: After screeding to finish grade, all surface water and laitance shall be removed. Floating with hand or power floats shall be started as soon as the screeded surface has stiffened sufficiently. Power finishing machines shall have four blades. Floating shall be the minimum necessary to produce a level, evenly textured surface. After floating and before concrete has hardened thoroughly. The surface shall be evenly and neatly finished by means of a coarse fibered broom.

d) Trowel Finish: After floating, as specified hereinbefore, and after concrete has hardened sufficiently so that it does not stick to the trowel and rings when struck. Steel trowel with 4" bladed power finishing machine to a dense uniform surface free of blemishes, ripples and trowel marks. Dusting on cement or sprinkling water to facilitate

finishing will not be permitted. Roof surfaces and all interior floor surfaces, unless otherwise indicated, shall receive a trowel finish. Slabs to receive tile shall not vary more than 1/16 inch in 3 feet from the required elevation or contain abrupt irregularities of more than 1/32 inch.

e) The concrete shall be kept in a moist condition for a period of at least 7 days after the placement of the concrete. The methods of curing the concrete to meet those requirements shall be the contractors.

03D00 PRECAST CONCRETE (Section)

03D10 General

- a) Furnish all materials, labor, transportation and equipment and properly install all work specified herein, and shown on drawings, structural and architectural, including field connections and welding.
- b) Shop details of construction and reinforcement, elevations and sections, panel arrangements, joint details and method of installation and anchoring shall be submitted for approval.
- c) ACI 318 - Building Code requirements for reinforced concrete
- d) [REDACTED]
- e) ASTM Standards in Building Codes

25X1A6d

03D20 Materials

- a) Precast wall panels, sizes as indicated
- b) Precast, prestressed key joists as manufactured by Prestressed Systems, Inc.
- c) All precast items shall be the products of an experienced manufacturer and shall be in strict accordance with these specifications regarding physical requirements, workmanship, textures and manufacture.
- d) All units shall be reinforced as necessary to withstand all stresses to be encountered in the manufacture, delivery and erection of the castings as well as those imposed after their erection on and attachment to the building.
- e) The manufacturer shall provide in each casting anchoring devices as detailed or as may be required.
- f) The manufacturer shall engineer and provide in each casting such threaded inserts or other lifting devices as may be required to easily and safely handle the units during manufacture, loading, unloading and erection. All such inserts shall be hot dipped galvanized.
- g) Casting shall be done in accurate molds designed to withstand vibration during the entire casting operation. Form molds shall conform to the shape, lines and dimensions of the units as detailed.
- h) Finishes:
 - Precast panels: Smooth rubbed finish
 - Precast floor joists: Smooth finish
 - Precast parking curbs: Smooth trowelled finish

03D30 Execution

- a) Units shall be accurately set, plumb and to line with the joint

spacing shown, and with each casting securely anchored to the structure as shown or as may be required.

- b) Coordinate installation of precast units with other trades.
- c) Units shall be erected under direct supervision of manufacturer's field representative.
- d) Take care to prevent damage to units during erection and subsequent construction operations.
- e) All units shall be shipped, handled and placed by skilled, experienced personnel by the use of proper and adequate equipment and facilities.
- f) After the work of erection is completed, any damaged units shall be repaired to the full satisfaction of the architect, or, if not so repairable, they shall be replaced with new castings. All exposed surfaces shall be thoroughly cleaned as the work progresses, free from stains, discoloration, and other blemish or defacement when used as decorative units.

04A00 MASONARY (DIVISION)

04A10 General

- a) Refer to the General, Supplementary and Special Conditions.
- b) All standard, codes and specifications referred to in these specifications shall be the current edition.
- c) Furnish masonry units, mortar, galvanized dovetail anchor slots.
- d) Install masonry units, mortar and accessories and provide openings as required.
- e) A laboratory retained by the owner will make tests as are deemed necessary.
- f) Store all materials under cover and in a dry place.
- ~~g)~~ If due to a change in footing elevations there is a change in the quantity of masonry from that indicated, an adjustment will be made in the contract price. Masonry unit price _____ for addition or deduction.

Add. #1.

04A20 Materials

- a) Mortar materials: ASYM C270 Type (M)
- b) Joint reinforcement: Standard DUR-O-WALL galvanized wall reinforcing.
- c) Dovetail anchor slots: 022 Zinc alloy
- d) Davetail anchors: 12 guage zinc ally
- e) Concrete masonry units: Standard aggregate shall be ASTM C90 grand U-11. Light weight aggregate: ASTM C90 and C311

04A30 Execution

- a) Erect masonry, plumb, straight and true including set bolts, anchors, sleeves and other items specified elsewhere but required to be set in masonry. Provide openings required by other trades.
- b) Masonry units shall be clean and dry. Lay units with cells vertical in running bond with successive courses lapped a minimum of one third unit. Lay first course in full mortar bed and provide full mortar

coverage of face shells for all horizontal and vertical joints.

c) All masonry work shall be erected before concrete columns and beams are poured.

d) When columns or beams are poured prior to laying masonry units install a dovetail anchor slot with anchors 16 inches on center upon written notice from the architect.

e) Joint reinforcement shall be installed in every other course and in the first mortar joint above and below each window or door opening. Lap reinforcing joints a minimum of 8 inches.

f) Munday block walls shall be laid in stacked course reinforced at each course and vertical joints.

05000 METALS (DIVISION)

05D00 LIGHT GUAGE FRAMING (Section)

05D10 General

a) Furnish and install non-bearing metal studs required on this project.

~~b) Typical non~~ *DELETE*

ADD #1.

05D20 Materials

a) 16 Ga. and 14 Ga. Metal studs shall conform to ASTM A570-66T and shall be galvanized

b) 18 Ga., 20 Ga. and 22 Ga. Metal studs shall have a minimum yield strength of 33,000 PSI and shall be galvanized.

05D30 Execution

a) Non-bearing studs shall be securely fastened to the track at top and bottom with two sheet screws both top and bottom

b) Typical non-bearing partitions shall be 18 Ga. 3½ or 3 5/8" studs at 16" on center up to a height of 12'-0" secured with minimum of #6 screws or approved equal.

05E00 MISCELLANEOUS METALS (Section)

05E10 General

a) Furnish and install miscellaneous metal work as shown and/or required on this project.

b) Work includes but is not necessarily limited to the following:
Prefabricated stairs, equal to Pico Safe Stair Co.

Exterior handrails

Access ladders

Thresholds

Shelf angles, hangers, supports and sleeves

Fasteneing devices

c) Shop drawings will be required for the items mentioned in 05E10b

05E20 Materials

- a) Steel shapes, ASYM 136.66a
- b) Aluminum extrusions, Alloy 6063T5 or 6060T6
- c) Aluminum castings, Alloy F 214
- d) Ferrous metal items shall be painted - zinc chromate paint.
- e) Items, including anchors and bolts to be set in, or in contact with masonry and concrete shall be zinc coated.
- f) Ferrous threshold to be hot dip galvanized
- g) Fasteners, Steel sections, ASTM 307.65
- h) Fasteners, Aluminum, Stainless Steel, series 300

05E30 Execution

- a) If not specifically shown, materials and workmanship to conform to Standard Trade Practice.

05E40 Furnish and install where indicated on the drawings C/S extruded aluminum Standard Mullion Louvers Model 4100, as manufactured by Construction Specialties, Inc., Cranford, New Jersey; San Marcos, California; Toronto, Canada. Frame and blades to be 6063-T52 alloy, minimum .081 inch thick with reinforcing bosses. Heads, sills and jambs to be one piece structural members as detailed and to have integral caulking slot and reaining bead. Slideable interlocked mullions to have provision for expansion and contraction. All fastenings to be stainless steel or aluminum. All louvers furnished with $\frac{1}{2}$ " mesh, .063 dia. wire intercrimp bird screen secured in removable extruded aluminum frames. All Louvers to be free of scratches and blemishes and shall be finished in a C/S Kynar/Fluoropon coating. As shown on drawings, Construction Specialties Inc. shall supply in writing at job completiong their standard 20 year guarantee against failure of the Kynar/Fluoropon finish, or approved equal.

06000 CARPENTRY (DIVISION)

06A00 CARPENTRY (Section)

06A10 General

- a) Division 1 of the specifications applies and the general conditions.
- b) This section includes all rough and finished carpentry and millwork and the installation of items furnished but not installed under other sections as follows:
 - Doors: Furnish under section 8A and 8B
 - Finished hardware: Furnished under section 8A
 - Hollow metal door frames: Furnished under section 8A
- c) Furnish shop drawings for millwork for approval prior to fabrication, also samples of finishes.
- d) See drawings, schedules and details for location and quantities of carpentry and millwork required.
- f) Frame out opeings for other trades; Provide temporary centering

bracing and shoring and temporary enclosures as required in the building.

g) Furnish and install sound insulation around bathrooms and walls requiring sound insulated walls as per plans.

06A20 Materials

a) All wood shall be sound, flat, well seasoned, thoroughly dry, straight and free from impairing defects.

b) Lumber shall conform to the ALS Simplified Practice Recommendation R-16, latest edition, grades shall conform to the grading rules of the manufacturer's association under whose rules the lumber is produced.

c) Dimension lumber shall be No.2 Southern Pine, or construction grade Douglas Fir.

d) Interior frames, trim and miscellaneous wood work not scheduled or indicated for natural or stained finish shall be Kiln-Dried Poplar free from any knots, bark or defects.

e) Interior trim scheduled for natural or stained finish shall be selected Birch (no finger joints)

f) Plywood in millwork to receive natural or stained finish shall be premium grade (1) rotary cut Birch, commercial standard CS35-61 by U.S. Plywood or Georgia Pacific.

g) Prefinished paneling, see finish schedule.

h) Other plywood shall be exterior grade, A-A where exposed two side, A-C where exposed one side, Douglas Fir or better.

j) Wall insulation shall be 3" thick X 24" wide X 48" long mineral batts by Johns-Manville or approved equal.

k) Laminated plastic shall be standard grade Formica, Micarta, Texolite or Nevamar in color and pattern as selected by architect.

06A30 Execution

a) Verify all dimensions at the building and examine all adjoining work on which his work is dependent for perfect workmanship.

b) Exposed surfaces and edges shall be finished smooth and be free of saw cuts, marks or defacements of any kind. Joints shall be accurately and neatly made and fitted tight. End grain shall be concealed as much as possible. Except in storage closets and custodial spaces behind doors edges of plywood shall be banded with solid stock hardwood glued with water resistant or waterproof glue.

c) Work shall be carefully scribed and fitted to walls or other finished surfaces.

d) All millwork or casework shall be assembled at the mill insofar as practicable and delivered ready for erection. Millwork not prefinished shall receive final sanding and a sealing coat before delivery to the job.

e) Finish hardware shall be accurately fitted and securely attached without damage to metal or woodwork or hardware. Follow manufacturer's directions. Damaged work shall be replaced.

f) Doors shall be hung with a uniform clearance of 1/16" minimum and 1/8" maximum at top and sides with proper bevels of 1/8" in two inches on lock side. Provide 3/16" bottom clearance over threshold,

ceramic tile or carpet; 3/8" otherwise.

g) See door schedule for grills.

h) No millwork shall be delivered to site until building is completely free of moisture.

06B00 WOOD TREATMENT (Section)

06B10 General

a) Framing, door bucks, nailers, ground, furring, blocking and all other lumber in contact with concrete, masonry or exposed to the weather or called for to be treated material shall be given one of the following pressure treatments:

| <u>Preservative</u> | <u>Min. net retention, lbs./cu. ft.</u> |
|----------------------------|---|
| Pentachlorophenol Solution | 6.0 |
| Celcure, Dry Salt | .75 |
| Tanolith, Wolman Salt | .55 |

b) Lumber used in the areas mentioned in above which is not normally available "treated" shall be apinted with two coats of Green "Woodlife".

07000 THERMAL AND MOISTURE PROTECTION (DIVISION)

07A00 ROOFING AND SHEETMETAL (Section)

07A10 General

a) The General and Supplementary conditions and division 1 apply to all of this section. Mention herein or indication on the drawings of articles, materials, operations or methods requires that the contractor provide each item mentioned or indicated or reasonably implied of a quality or subject to qualifications noted. Perform according to conditions stated each operation specified and provide all necessary labor, equipment and incidentals.

b) Inspect and accept the roof deck before commencing the work.

c) Lead flashing and flashing accessories passing through the roof for piping and conduit shall be furnished by the mechanical, plumbing and electrical trades, as may apply and installed by this contractor

07A20 Materials

a) Roofing gravel shall be clean white river gravel. $\frac{1}{4}$ to $\frac{5}{8}$ " in size applied at approximately 300 lb. per square

b) Cants shall be wood or fiberboard.

c) Nails and screws shall be hot-dip galvanized or non-ferrous wherever exposed to the weather. Nails shall have annular rings barbs or special coating to prevent pulling out.

d) Bituminous plastic cement shall conform to Federal Specification SSC-153, Type 11.

e) Provide cant strip flashing around perimeter of roof as indicated

on drawings. 26US guage zinc coated steel, or paintable stainless steel.

f) Roof deck insulation shall be urethane foam board with a minimum thickness of 1" with a minimum density of 2 lbs. per cubic ft. coated both sides for strength and bond. Pitch to roof drain.

07A30 Execution

a) One of the following specified built up roofings shall be installed complete with flashing:

~~Ruberoid 240~~ *GAF 212*

~~Philip-Carey Spec. No. 300~~ *BIRO MC. 3. MP (30 YEAR BOND)*

~~Barrett No. 220-C~~ *FLUTEX BARRETT #320-C*

b) The roof deck is a poured concrete deck and it is intended that the first sheets be solidly mopped and nailed.

c) The manufacturer's guarantee (renewable).

e) Thoroughly cover all block masonry below grade with an application of Lambert Corp., "Waterban" No. 40.

07B00 CAULKING AND SEALANTS (Section)

07B10 General

a) All joints about the perimeter of curtain wall, window and door frames, other exterior openings, expansion joints, and elsewhere indicated and specified, shall be filled and calked with calking compound in a manner to provide weather-tight sealing. Materials shall be delivered to the work site in their original unbroken containers, bearing the manufacturer's name and brand designation.

07B20 Materials

a) Caulking compound shall be a polymerized elastic non-staining compound composed of synthetic rubber treated oil, pigments and asbestos fibre which will remain resilient, tough and elastic, will not become gummy or sticky; and which is resistant to oxidation, sun's rays, heat and weather. Except as specified otherwise herein, preparation of surfaces, application and cleaning shall be in strict accordance with the manufacturer's printed instructions and details. The following are approved for use.

b) Urethane Sealant No. 101, standard grade, black, by the Standard Products Company.

c) PPG No. 5011 Duribon Polysulfide, black

d) Thiokol, black

e) Dap Flexiseal Rubber Base Compound, black

07B30 Execution

a) All surfaces to receive caulking shall be dry and thoroughly clean of all loose particles, dirt, dust, oil, grease or other foreign matter.

b) Joints shall be a minimum of 1 1/4" in width and 3/8" in depth, except as indicated otherwise, where adequate grooves have not been provided, grooves shall be prepared by cutting and cleaning out the mortar

to the minimum depth and by grinding to the minimum width, taking care that adjoining metal work is not reduced in section.

c) Where a suitable joint backstop has not been provided, or when the depth of the joint is greater than $3/8$ ", the back of the joint shall be first filled to within $3/8$ " of the surface with a soft premolded filler strip, foamed rubber or uncoiled oakum firmly packed in place.

d) Primer: After cleaning and before the application of the caulking compound, all joints in wood, concrete and masonry shall be primed with a quick drying primer as recommended by the manufacturer of the caulking compound.

e) Openings shall be completely filled with caulking compound, preferably by the use of a pressure gun; and surface of joint shall be neatly tooled. Exposed caulking shall be free of wrinkles and uniformly smooth.

f) The surfaces of all materials adjacent to caulking application shall be cleaned of all smears of compound or other soiling due to the caulking operation.

08000 DOORS AND WINDOWS (DIVISION)

08A00 METAL DOORS AND FRAMES (Section)

08A10 General

- a) The General and Supplementary conditions and division 1 apply to all of this section.
- b) This section includes all metal doors and frames.
- c) Provide shop drawings of all doors and frames for approval of the architect prior to commencing fabrication.
- d) See door schedule on plans and hardware schedule.
- e) Interior metal frames shall insure compatibility with the partition system.

08A20 Materials

- a) Metal frames shall be a minimum 16 gauge steel and shall be provided 1 shop coat of rust inhibitive paint.
- b) Exterior frames shall be a $7 \frac{3}{4}$ " wide.
- c) All interior doors require steel frames unless noted otherwise on the door schedule.
- d) All metal doors shall be $1 \frac{3}{4}$ " thickness and 18 gauge.

08A30 Execution

- a) Frames shall be anchored in accordance with manufacturer's recommendations but in no case shall anchors be greater than 24" on center
- b) Install doors and hardware so that doors operate properly.

08B00 WOOD AND PLASTIC DOORS (Section)

08B10 General

- a) The General and Supplementary Conditions and Division 1 apply to all of this section.
- b) All doors shall conform to the commercial standard CS-171-58 and National Woodwork Manufacturer's Association.
- c) All doors shall be as manufactured by: I. Emery, Inc. or the approved equal.
- d) Doors shall be solid core particle board with $5\frac{1}{2}$ " wood stile and rail, with $\frac{1}{8}$ " thick, high pressure melamine plastic faces, with edges painted
- e) Provide openings in the doors as per schedule on the Mechanical sheets for return air.

08C00 STORE FRONT SYSTEM (Section)

08C10 General

- a) The general and Supplementary Conditions and Division 1 apply to all of this section.
- b) Provide each item mentioned, indicated or reasonably implied of equality noted and required to perform its function. Provide all necessary labor, equipment, and incidentals for the complete job.
- c) The complete installation of fixed glass, doors and all incidental hardware.
- d) Coordinate the work with other trades affected by this work.
- e) Necessary field measurements, shop drawings for approval, prior to fabrication.
- f) See drawings and schedules for types, sizes and locations of doors, sash and glazing required.
- g) The installing contractor shall guarantee his installation of fixed glass, sash and entrances to be water tight for a period of two years from the date of final completion of the project.
- h) Caulking of the store front in part of this section however, see Division 7 for caulking requirements.

08C20 Materials

- a) Entrance doors shall be ALDORA, narrow style, flush glaze frames trim, anchors and hardware or approved equal.
- b) Store front section shall be Aldora flush glazed with anodized bronze aluminum finish or approved equal.
- c) Glass shall be $\frac{1}{4}$ " polished plate glass (solar bronze) as manufactured by PPG
- d) Matching spandarlite section as manufactured by PPG
- e) Safety glass shall be used in the door.

08C30 Execution

- a) Installation shall be by workmen experienced and skilled in this trade.
- b) All work shall be plumb, level and true to line.
- c) Furnish and install in strict accordance with the printed specifications and applicable details of the manufacturer.

- d) The contractor shall be responsible for all necessary shims, compressible filler materials, back-up for caulking as required for caulking for this installation.
- e) Protective coating, factory applied to protect aluminum against staining: Remove prior to applying sealants as required, remove remainder on completion of job.
- f) Protect all glass: replace all scratched, chipped, broken or cracked glass.
- g) Upon completion of the work, clean all glass.

08D00 HARDWARE SCHEDULE (Section)

~~Door "A"~~ ITEM #1
1 Pr. Doors #1 Exterior to Corridor 100, RHR Act.

Butts by Door Manufacturer

| | | | |
|---|--------------------|---|-------|
| 1 | Dbl. Cyl. Deadlock | B462P | US26D |
| 1 | Dbl. Acting Closer | To be selected | |
| 2 | Flush Bolts | 458B26D | |
| 1 | Threshold | SLOV 72" | |
| 1 | lock | YALE 197 (DEAD BOLT TYPE) LOCK, WITH "MEDICO" See App. #1 | |

ITEM #2

| | |
|---|---------------------------------------|
| 1 | Sgl Door B Room 105 to Room 107, RH |
| 1 | Sgl Door B Room 105 to Room 106, RH |
| 1 | Sgl Door B Room 107 to Room 106, LH |
| 1 | Sgl Door B Cor. 100 to Cor. 130, RH |
| 1 | Sgl Door B Cor. 100 to Room 110, RH |
| 1 | Sgl Door B Cor. 100 to Room 111, LH |
| 1 | Sgl Door B Cor. 100 from Cor. 102, RH |
| 1 | Sgl Door B Cor. 119 to Room 118 RH |
| | 3-0 x 6-8 x 1-3/4 W x M |

| | | | | |
|----|-----------|---------|---------------|-------|
| 12 | Pr. Butts | BB1279 | 4 1/2 x 4 1/2 | USP |
| 8 | Locksets | D52PD | Ply | US26D |
| 6 | Closers | 4014 | Alum | RH |
| 2 | Closers | 4014 | Alum | LH |
| 1 | lock | Simpson | | |

See App. #1.

ITEM #3

| | | |
|---|----------------------------------|-----|
| * | 1 Sgl. Door C Cor. 130 to Vest | 108 |
| * | 1 Sgl Door C Vest 108 to Bath | 108 |
| * | 1 Sgl. Door C Bath 108 to Shower | |
| * | 1 Sgl. Door C Cor. 130 to Vest | 109 |
| * | 1 Sgl. Door C Vest 109 to Bath | 109 |
| | 1 Sgl. Door C Cor. 130 to Cor | 135 |

1 Sgl. Door C Corr 135 to Room 131
 1 Sgl. Door C Corr 135 to Room 133
 1 Sgl. Door C Corr 135 to Room 132
 1 Sgl. Door C Corr 135 to Room 134
 1 Sgl. Door C Corr 135 to Room 136
 1 Sgl. Door C Corr 135 to Room 137
 1 Sgl. Door C Corr 135 to Room 138
 1 Sgl. Door C Corr 135 to Room 140
 1 Sgl. Door C Corr 104 to Room 141
 1 Sgl. Door C Room 144 to Room 141
 1 Sgl. Door C Room 144 to Room 142
 1 Sgl. Door C Room 144 to Room 143
 1 Sgl. Door C Corr 103 to Room 120
 1 Sgl. Door C Room 120 to Room 121
 1 Sgl. Door C Corr 102 to Room 117
 1 Sgl. Door C Room 118 to Room 118A
 1 Sgl. Door C Corr 102 to Room 101
 1 Sgl. Door C Corr 119 to Room 116
 1 Sgl. Door C Corr 119 to Room 113
 1 Sgl. Door C Corr 119 to Room 114
 1 Sgl. Door C Room 111 to Room 112
 1 Sgl. Door C Room 111 to Room 110
 3-0 x 6-8 x 1-3/4

42 Pr. Butts 1279 4 1/2 x 4 1/2 USP
 23 Passage Sets A10S Ply US26D 2-3/4" B.S.
 * 5 Pull on Plate 4476 x 4470 US26D
 * 5 Push Plate 4407 4x16 US26D
 1 Sign 3620 C1 Plastic Men
 1 Sign 3618 C1 Plastic Women

ITEM #4

1 Sgl. Door E Corr 104 to Warehouse, RH *OUTSIDE ADD #1*

1 1/2 Pr. Butts BB1279 4 1/2 x 4 1/2 USP
 1 Panic Device 88 TP w/901 Cyl US27
 1 Threshold SLOV 36" Alum
 1 Closer 4114 Alum RH
 1 LOCK YALE 197 - - - - MEDCO - - - - See Add. #1

PAIR OF ITEM #5

1 Sgl. Door F Room 122 to Warehouse, LH *OUTSIDE ADD #1*

1 1/2 Pr. Butts *DOOR* 1279 4 1/2 x 4 1/2 USP
 1 Single Cyl Deadlock B460P US26D
 1 Lockset D52PD Ply US26 D
 1 LOCK YALE 197 - - - - MEDCO - - - - SEE ADD. #1
 2 FLUSH BOLTS (RT. HAND *DOOR*) 458 132LD

Threshold

SLOV 36" Alum

ITEM #6

1 Sgl. Door D Room 105 to Corr 102, RH

1 Sgl. Door D Room 105 to Corr 104, LH

3-4 x 5-10 x 1-3/4 M x M
2 1/2" x 1 1/4" x 1 1/4"

ADD: 11

Hardware complete by Vault Manufacturer To include **SARGENT & GREENE T8400**

ADD: 11

Supply Medco High Security Scylinder for appropriate installation

0900 FINISHES (DIVISION)

09A00 LATH AND PLASTER (Section)

09A10 General

- a) The General and Supplementary Conditions and Division 1 apply to all of this section.
- b) Comply with applicable provisions of the current edition of USA Standard Specifications and Manufacturer's recommendations for work covered in this section and with USA Specifications #a42 tolerance for finished work (1/8" in 6")
- c) Submit samples 48" X 48" of stucco application prior to installation.

09A20 Materials

- a) Stucco: shall consist of 1 part Portland Cement conforming to ASTM C150-67 Type 1 and one part masonry cement conforming to ASTM C91.66. Four to Six parts sand conforming to ASTM C35-62
- b) The final coat of stucco shall contain waterproofing Hydralite Plus from the W.R. Grace or approved equal.
- c) Water: potable
- d) Gypsum plaster shall conform to ASTM C-28
- e) Hydrated lime shall conform to ASTM-206
- f) Marbletite No. 759, light cream and No. 762, buff darkened. Provide samples prior to installation
- g) Metal lath shall be small mesh copper alloy weighing not less than 3.4 lbs. per sq. yd.; Factory dipped or painted with rust resistant primer as manufactured by U.S. Gypsum co. or approved equal.
- i) Provide metal plaster stop and casing beads at metal door frames and for other locations as required. Beads shall be 24 Ga. Galvanized steel. Depth as required for installation
- j) Provide metal cornerites on all plaster internal corners of Masonry. Fabricate cornerite strips from 2.5 lb. flat expanded metal lath bent at right angles to form 3" legs on each side.

09A30 Execution

- a) Exterior sprayed stucco, shall be machine applied to heavy texture.
- b) Except as otherwise noted, the minimum thickness of plaster as measured from the face of lath or masonry to finished surface shall be as follows:
Plaster: $\frac{1}{2}$ " on metal lath and masonry walls plus $\frac{1}{8}$ " maximum finish coat.
Stucco: $\frac{1}{2}$ " on metal lath and masonry walls plus $\frac{1}{8}$ " maximum finish coat.
- c) Secure metal accessories in place and set grounds to receive the specified thickness of plaster. When necessary dampen masonry surfaces by applying clean water before plastering.
- d) Two-coat work: Apply base (first) coat to form good bond on masonry and bring the plaster out to grounds, straightened to a true surface and left rough, ready to receive the finish (second) coat.
- e) Three-coat work: Apply scratch (first) coat firmly to plaster base; prior to final set, scratch for bonding of next coat. Apply brown (second) coat to true planes and screed in both directions. Float and leave rough to receive finish (third) coat. Scratch coat must be dry before brown coat is applied, except on masonry surface.
- f) Apply finish coats over base coat to true even surface: allow to draw a few minutes and then trowel to smooth finish. Use the proper amount of water.
- g) Prior to painting, the contractor shall repair all damaged or defective plaster. Patching of plaster shall match existing work. Where plaster meets another material, the plasterer shall provide a casing bead separation as required.
- h) The plastering trade shall keep areas used in acceptable clean condition.

09B00 DRYWALL (Section)

09B10 General

- a) General and Supplementary Conditions and Division 1 apply to all of this section. Provide all labor equipment and materials required to perform the work.
- b) Protect the materials and store them in a dry and water-tight place.
- c) All partitions shall receive $\frac{5}{8}$ " gypsum dry wall both sides unless specifically noted otherwise on the plans.

09B20 Materials

- a) Best wall gypsum board, $\frac{5}{8}$ " thick
- b) Bestwall gypsum sheathing "Soundboard".
- c) Bestwall reinforcing tape.
- d) Bestwall joint system compound
- e) Bestwall laminating compound
- f) Necessary nails, screw, ramset devices, etc. for the complete installation as shown and described. All nails and screws used in

outer layer or wall board shall be galvanized.

- g) Bestwall steel channel studs and floor and ceiling channels.
- h) Insulation batts, 2" thick, semi-thick, premium brand, 23X93"
- i) Necessary necessary nails, screws, ramset devices, etc. for the complete installation. Wall board nails and screws galvanized.
- j) Neoprene gasketing to separate ceiling channels from acoustical ceiling tees. When walls but to ceiling in lieu of extending through it.

09B30 Execution

- a) Install wallboard and framing in accordance with details and schedules; in accordance with the manufacturer's directions; specifications below. If the details and specifications herein are in conflict with the manufacturer's directions consult the architect for clarification.
- b) Insulation shall be installed so as to insure against sagging of the batts.
- c) Joint work shall be done in strict accord with the manufacturer's specifications with the materials above mentioned for a "one-material" treatment completed work shall be inspected and approved by the architect prior to commencing painting or other finishes. Correct any surface damage and defects, leave smooth and ready for paint.
- d) Metal Studs: Double layer Method: Secure base layer to supports with 1" type "S" screws 12" O/C at top and bottom and at joints, 32" O/C elsewhere. Secure top channel to ceiling tees with 1" type "S" screws at maximum spacing of 24". Secure with neoprene gasket used as a separator between metals. Secure floor channel with ramset devices suitable for the purpose at 24" O/C maximum spacing.
- e) Stagger joints of second layer of Bestwall, using laminating compound in 4" wide strips at 2" from edges and 24" O/C, and use 1-3/8" screws at 12" O/C at edges and 16" O/C elsewhere.
- f) Wood Studs: Double layer method: Nail base 1 per to studs with 6D nails at 12" O/C. Secure 5/8" Bestwall with laminating compound as described above and with 8D nails at 12" O/C. See details.
- g) Single layer Method: Nail 5/8" Bestwall to studs with 6D nails at 8" O/C at edges and 12" O/C elsewhere.

09C00 TILE (Section)

09C10 General

- a) The General and Supplementary Conditions and Division 1 apply to all of this section.
- b) Provide all labor, materials and incidental requirements necessary for the complete installation of quarry and ceramic tile.
- c) Refer to the finish schedule (A-5) and the entrance ramp (A-2) and window detail (13/A8)
- d) Furnish tile samples for color selection where required.

09C20 Materials

- a) Tile floor and cove base shall be as manufactured by American

- Olean. See finish schedule (cove C-813 and CB-813 and CC-813)
- b) Quarry tile shall be American Olean Murray tile 6"X6" UMBER with grain abrasive surface, black grout, brick design layout. (Bullnose #Q1665)
 - c) Grout for the floor shall be tile-mate as manufactured Durament or (1&M) approved equal; color white unless specified otherwise on the finish schedule.
 - d) Provide marble threshold at termination of the tile under doors.

09C30 Execution

- a) By skilled workmen in his trade.
- b) In accordance with current accepted standard practices of tile industry, published by the Tile Council of America.
- c) Clean with a solution of neutral soap and water. No detergents. Damp cure three days. Polish with clean cloths.
- d) All tile shall be applied with the thin set method. Powdered mortar mix complying with NSA specifications A118, 1-1967 for dry set. Portland cement mortar or organic adhesives in accordance with USA A 108.4-1968
- e) Entrance Quarry tile: conventional sand and mortar bed method with USAS 108.1, 108.2 and 108.3 1967

09D00 ACCOUSTICAL TREATMENT (Section)

09D10 General

- a) The General and Supplementary Conditions and Division 1 apply to all of this section.
- b) Provide all labor, materials and incidental requirements necessary for the complete installation of accoustical tile ceiling.
- c) Refer sheet (A-6) for layout and finish schedule (A-5)

09D20 Materials

- a) Accoustical tile shall be as manufactured by Armstrong Corp. Cortego design #769; 48" X 24" x 5/8" and Sanserra tegular #573; 24" X 24" X 3/4"
- b) Ceiling grid shall be a suspended T grid system suspended with #10 Ga. annealed galvanized wire approx. 4'-0" O/C. Finish shall be white low sheen enamel baked on.

09D30 Execution

- a) Layout ceiling in accordance with the layout shown on sheet A-6 therefor center each space to form equal borders.
- b) Installation shall be by workmen skilled in this trade.
- c) Upon completion ceiling shall be clean, even, true to line and free from defects.

09E00 RESILIENT FLOORING (Section)

09E10 General

- a) The General and Supplementary Conditions and Division 1 shall apply to all of this section
- b) Flooring shall be as manufactured by Armstrong Corp. or approved equal; applied with a mastic.
- c) See finish schedule sheet (A-5)

09E50 CARPETING (Section)

General

- a) The General and Supplementary Conditions and Division 1 shall apply to all of this section
- b) See finish schedule, sheet A-5
- c) All carpeting shall be Lee's benefactor, medium density FOAM back, applied with a mastic.

09F00 PAINTING (Section)

09F10 General

- a) The General and Supplementary Conditions and Division 1 apply to all of this section.
- b) Protect all adjacent surfaces to those being finished. Provide drop cloths where necessary.
- c) Prime all wood, ferrous metal, etc., not specified to be prime coated by others, in addition to finish coats.
- d) Remove and protect hardware and accessories, protect other items during painting.
- e) Furnish necessary tools, scaffolding and equipment.
- f) All surfaces shall be brush or roller painted.
- g) All color will be selected by the architect.

09F20 Materials

- a) Materials shall be as manufactured by Sherwin Williams or approved equal.
- b) In general, ready-mixed for all painting.
- c) Deliver all materials in unbroken, original containers bearing brand and manufacturer's name.
- d) Mix and use in strict accordance with manufacturer's specifications.

09F30 Execution

- a) Workmanship shall be the best. All materials evenly brushed and spread on without runs, sags, and brush marks. Only skilled mechanics shall be employed.
- b) All surfaces shall be smooth, dry and thoroughly clean before painting.
- c) Metal surfaces, including piping shall be cleaned, free of rust dirt, scale, grease and imperfectly bonded priming coats. Sand smooth before application and finish coat.
- d) Wood surfaces: Sand as necessary to produce a smooth paint fin-

ish. Cover any knots and pitchy places with shellac. Fill nail holes with putty after prime coat. Neatly fill crack between trim and adjoining surfaces. Paint finishes applie to wood shall be sanded between coats.

e) Defects in shop priming coats: Spot prime in field. Spot prime welds, rivets, spacers and bolts as required.

f) Galvanized metal surfaces (except those factory prepared for paint bond) treat with solution of 8 oz. copper-sulfate to one gallon water. Apply with brush and brush off when dry.

g) All coats shall be thoroughly dry before applying succeeding coats.

h) The contractor shall make provisions to do minor touching up of pre-finished paneling and doors.

i) Clean up all drippings, spatters, tec. and leave project in acceptable manner.

09F40 Schedule

a) Exterior:

- 1) Metal - 3 coat work: 1 coat of oxide red lead primer and 2 coats house paint.
- 2) Stucco - 1 coat Thoroseal (follow manufacturer's directions)
- 3) Concrete - 2 coats Thoroseal (follow manufacturer's directions)
- 4) Colors of Thoroseal shall be white and pearl gray, see drawings.

b) Interior:

- 1) Metal (exposed pipe, heating units, etc.) - 3 coat work; 1 coat interior trim primer, 1 coat enamel undercoater and 1 coat satin enamel.
- 2) Dry wall construction - 3 coat work: 1 coat Vapex wall primer, 1 coat Lyt-All double duty primer, and 1 coat oil base or latex base finish coat.

10000 SPECIALTIES (DIVISION)

10A00 FLAGPOLES (Section)

General

a) The General and Supplementary Conditions and Division 1 shall apply to all of this section.

b) The flagpole shall be as manufactured by ACME FLAGPOLE CO., Camden, New Jersey or an approved equal.

Materials:

a) Flagpole shall be cone tapered of seamless cold drawn 6063.T6 aluminum tubing with .188 inch wall thickness with and anodized bronze finish.

- b) Exposed length 25'-0", total length 28'-0"; outside diameter 5½" bottom and 3½" top; flash collar 14" aluminum bronze
- c) Cleats two 9" cast aluminum; Halyards; two 5/16" diameter #10 samson quality; two neoprene covered bronze snaps for securing the flag.
- d) Flag: 4' X 6', made of cotton bunting, US government specifications 33.04390 with printed stars. Bunting Bulldog.

Execution

- a) Foundation sorm shall be 12" diameter; 16 Ga. galvanized corrugated steel 3'-4" long. 3000 PSI concrete.

10B00 TOILET PARTITION (Section)

10B10 General

- a) The General and Supplementary Conditions shall apply to all of this section.
- b) Provide shop drawings; do not commence fabrication until shop drawings are approved
- c) Furnish and install toilet partitions and hardware in accordance with drawings and approved shop drawings.

10B20 Materials

- a) Toilet stall partitions shall be according to drawings and as manufactured by Mid-South Formica Franchised Fabricators, or architect approved equal. Plastic laminate shall be bonded to exterior A-B grade plywood, using a thermo setting plastic resin adhesive. All laminating shall be performed under continuous heat of approximately 200 degrees and pressure of not less than 3000 lbs. Stiles, panels and doors shall be laminated to correct dimensions, and shall be impervious to moisture acids, alkalis and detergents present under usual toilet room conditions, color shall be as selected.
Flush doors shall finish 1 inch thick
Flush stiles shall finish 1¼" thick
Flush panels shall finish 7/8" thick
- b) Plastic laminate: High pressure type not less than 1/16" thick.
- c) Plywood: Exterior grade, A-B faces.
- d) Stile shoes: .031 inch thick stainless steel type 302, hemmed top and bottom and die formed to fit stile.
- e) Brackets: Chrome plated over copper on heavy die cast metal, Zamack, or approved equal.
- f) Stile mounting assembly and floor fastenings: Hot dipped galvanized.
- g) Hardware: Doors shall be hung on concealed gravity hinges with stainless steel pintles, upper and lower hinge support above and below bearing point. Hinges shall be recessed and concealed within doors. Compartment doors shall be fitted with slide latch, bumper with keeper and coat hooks and cast alloy non-ferrous, chrome plated. All hardware shall be installed with theftproof sex-bolts.

10B30 Execution

- a) Finish shop drawings for architect's approval
- b) Do all drilling, cutting and fitting for hardware and also for toilet paper holders furnished under this section
- c) Install all partitions and hardware and clean.
- d) Stile shall be clipped to panels with three galvanized tension hooks recessed in panels. Fastenings to floor and walls shall be adjustable.
- e) Panels, and end plasters shall be secured to walls with 3-winged channels for each panel or pilaster intersection.

10B50 Toilet Room Equipment

- a) Toilet tissue roll holders shall be Reserve-A-Roll co. Model No. 2R-R2 satin chrome finish, one for each water closet.
- b) Dispensing and disposal units: Recessed paper towel dispenser and waste receptacle B-360. Stainless steel framed mirrors with shelf Model No. B-292 series, (see drawings for sizes). Soap dispensers Model #B-25. Toilet tissue dispensers B-274. Feminine napkin vendor B-350. Feminine napkin disposal B-270 (one each toilet stall). Wall urns B-278 (one).

11000 EQUIPMENT (DIVISION)

11A00 VAULT EQUIPMENT (Section)

General

- a) The General and Supplementary Conditions and Division 1 shall apply to all of this section
- b) Vault door shall be class 5 7110-935-1886 and 7110-935-1883 as manufactured by Mosla Safe Co., Hamilton, Ohio; with a day gate.

DELETE

Add'l.

12000 FURNISHINGS (DIVISION)
Omit

13000 SPECIAL CONSTRUCTION (DIVISION)
Omit

14000 CONVEYING SYSTEMS (DIVISION)
Omit

SECTION 15A - PLUMBING

SEE ADD#1
FOR ADDED WORK

15A.1 GENERAL.

- A. Refer to General Supplementary and Special Conditions.

15A.2 SCOPE.

- A. The work includes plumbing and piping systems as indicated on the plans and/or specified herein; except as specifically excluded. The following list of work is included to assist the Contractor, but is not necessarily a complete list of the items involved.
1. All excavation and backfilling necessary to install the work under this section of the specifications.
 2. Soil and waste piping, vents, etc., to all fixtures and locations shown on drawings.
 3. All fixtures and trim.
 4. Water piping system to all locations shown, including connections to all fixtures, equipment, hose bibbs, etc.
 5. Drains for the air conditioning system.
 6. Storm drainage.
 7. Emergency generator fuel and exhaust systems.
 8. Connection of miscellaneous equipment.
 9. Brochures, shop drawings, details, etc., as required for approval of equipment and materials.
 10. Fees, permits, charges and insurance.
 11. Temporary toilets and utilities.
 12. Tests and inspections.
 13. Guarantees.
- B. Work Not included in this section:
1. Electrical wiring connections to all equipment and controls are included in the Electrical Section.

15A.3 MATERIALS.

- A. General Requirements. All materials for this work shall be new and free from defects. All materials shall comply with the latest requirements of the American Society for Testing Materials whenever the above

society has such specifications and standards or by other authorities listed below. All materials shall be indelibly marked by name of manufacturer, weight and/or class.

1. Pipe Materials and Service Schedules:

| <u>Materials</u> | <u>Service</u> |
|---|---|
| (a) Cast iron soil pipe extra heavy weight ASTM A74. | All underground soil, waste, and storm drain lines. |
| (b) Cast iron soil pipe service weight ASTM A74. | All above ground soil and all waste lines. |
| (c) Copper drainage tube (DWV) ASTM B306-66. | Sanitary waste arms, clear water safe wastes above first floor. |
| (d) Seamless copper water tube ASTM B-88-66 type L hard temper. | Water pipe systems. |
| (e) Brass pipe or tube, chrome plate. | Exposed branches at fixtures and equipment. |
| (f) Vitrified clay pipe extra strength ASTM C700 | Exterior sanitary and storm drain lines. |
| (g) Concrete pipe, ASTM C-76 | Storm drain lines, Fire standpipe system. |

2. Fittings and Joints:

- (a) All joints and connections shall be made permanent and shall be watertight. Material, strength, quality and manufacturer for pipes listed in above schedule and various services are as follows:
 - (1) Copper water pipe: Wrought copper, solder joint type. 50-50 solder for types "L" and D.W.V. pipe.
 - (2) Cast iron bell and spigot type: Use fittings of same manufacture and weight of pipe, pack with oakum, fill with molten lead and caulk solid.
 - (3) Galv. steel pipe: 150 lb. galv. malleable iron.
 - (4) Dielectric couplings (concealed piping) and unions (exposed piping) are required between all dissimilar metals in piping and equipment.
 - (5) Unions: Install bronze ground joint unions in piping 2" or smaller; flanges in piping 2-1/2" or larger in all service at each piece of equipment and check valves, etc.

- (6) Provide nipples of same material and weight as pipe used. All thread nipples are prohibited.
- (7) Reducing fittings shall be used where changes in pipe size occur. Bushings are prohibited.

3. Pipe Sleeves and Escutcheons:

- (a) Pipe Sleeves. Furnish and install 22 gauge galvanized sheet metal sleeves for all pipe passing through concrete. The inside diameter of the pipe sleeves shall be at least one inch larger than the outside diameter of the pipe. Pack with fiberglass and seal with mastic.
- (b) Escutcheons. Provide chromium plated brass with set screw, spring or other device to hold them securely in place.

4. Pipe Supports, Hangers and Inserts:

- (a) Pipe supports shall be malleable or wrought iron ring hangers with adjusters except as noted. All piping shall be supported 10' apart for pipes larger than 1-1/2" and 8' apart for 1-1/2" and smaller. Soil piping shall be supported 5' apart. Copper tubing shall be supported 6' apart. Hangers for copper pipe shall be copper plated.
- (b) Pipe hangers shall be complete with rods and clamps, proportioned to the size of the pipe to be supported.
- (c) Do not use perforated band iron, wire, or chain as hangers.
- (d) Fixture supports. All fixtures shall be securely anchored to the supporting surfaces with steel expansion bolts or toggle bolts. No wooden or fiber plugs will be permitted.

5. Valves:

- (a) General: All valves shall have the manufacturer's name and rating cast on the body of the valve.
- (b)

| <u>Service</u> | <u>Type</u> | <u>Size</u> | <u>Mfgr.</u> | <u>Fig. No.</u> |
|----------------|-------------|-------------|--------------|-------------------|
| Water | Gate | 3" & under | Nibco-Scott | T-124 & 5-124 |
| Water | Check | 3" & under | Nibco-Scott | T-413-W & S-413-W |

Equal valves by Crane, Jenkins, Lunkenheimer, Powell or Wolworth will be acceptable.

6. Drainage Specialties:

- (a) Traps.
 - (1) All traps shall be self cleaning.

- (2) Drains from air conditioning apparatus, shall be separately trapped as close to the unit as possible. The effective trap seal shall be two times the total static pressure of the fan in inches.
- (3) Cleanouts. Provide pipe cleanouts in soil and waste lines. Provide removable cleanout plugs of brass with screw threads. For cleanouts in finished walls, provide Josam Series Y-130 BB, stainless steel; for tile floors provide Josam Series Y-190 BB, for finished concrete floor series provide Y-620-F. Comparable items manufactured by Wade or Zurn are acceptable.
- (4) Vent Flashing. Vent terminals shall be flashed and counterflashed with 16 ounce copper pitch pans or 4 pound sheet lead flashing.
- (5) Access Panels. Provide and install access panels for valves, etc., use Milcor Style K in plaster ceilings and walls and Style M in masonry and tile walls.

15A.4 SYSTEMS.

A. Sanitary, Soil, Waste, Vent and Storm Drains:

1. General. Install all horizontal soil and waste piping to slope 1/8" per foot grade. Run all horizontal vent lines to a minimum grade back to stacks and all vertical vent lines as direct and free from bends as possible.
2. Where not indicated otherwise all piping must be run as high as building construction permits.

B. Water Piping:

1. General. Provide a complete hot and cold water piping system, water service from the meter to the building, water heater, hose bibbs, connections to fixtures, equipment, etc.
2. Air Chambers. At each fixture or group of fixtures place an air chamber. Make air chambers one pipe size larger than riser and 20 pipe diameters long but in no case less than 18" long.
3. Hose Bibbs. Rough chrome plated. 3/4" solid flange, threaded hose end and key handle. Chicago Faucet Co. No. 387 or an approved equal.

15A.5 EXECUTION OF WORK.

- A. General. The Plumbing Contractor must commence his work as soon as the building has sufficiently advanced in construction layout.
 1. All systems shall be free from water hammer.
 2. Flushing. All piping is to be flushed out after erection.

3. Accessibility. This Contractor shall see that all equipment such as valves, traps, cleanouts, and other such apparatus shall be readily accessible.
4. Excavation:
 - (a) This Contractor shall do all excavating and backfilling necessary for the installation of this work.
 - (b) Excavation near footings and foundations shall be carefully checked to insure that the bearing material will not be undermined.
 - (c) All shoring, bracing, sheeting, piping and pumping facilities that may be necessary for work under this section of the specifications shall be furnished by this Contractor.
 - (d) All excavated material not required for filling shall be removed.
 - (e) Trenches shall be excavated true to grade and bell holes shall be excavated to insure the pipe resting for its entire length on the bottom of the trench.
 - (f) Care shall be taken not to excavate below the depth specified, or proper for slopes specified.
 - (g) Backfill shall be compacted to 95% density.
5. Vibration. All pipe shall operate without vibration, pulsation or objectionable noises.
6. All piping and material shall be installed in a neat and workmanlike manner. Any work not deemed neat or workmanlike shall be immediately removed by the Contractor and replaced in a satisfactory condition without additional cost to the Owner.
7. Painting:
 - (a) All pipe hangers and rods shall be painted with a coat of zinc chromate. Where primed or protective surfaces are damaged they shall be touched up in the field.
8. Piping in Concrete. Wrap all piping in concrete with a layer of 15 lb. felt.
9. Protection of fixtures, Materials and Equipment. Close all pipe openings with caps or plugs during installation. Keep fixtures and equipment tightly covered and protected against dirt, water or mechanical injury. Thoroughly clean all fixtures, materials and equipment upon completion of the work.

10. Tests:

- (a) Water Piping: All water piping shall be tested to 125 psig.
- (b) Sanitary and Storm Piping: Test with 10 foot head above the highest point of the system.

11. Connection of Equipment:

- (a) General. All connections between any piece of equipment and any piping systems in this section of the specifications shall be by means of unions, flanged joints or other means which permit equipment to be disconnected and removed for maintenance.
- (b) Valves. Furnish and install valves or cocks in supply line to each piece of equipment, on supply side of union connection.
- (c) Equipment not furnished under this section. Connections between equipment furnished by others or under other sections of the specifications and the piping systems covered by this section of the specifications shall be made under this section.

12. Sterilization. As soon as the water piping has been thoroughly flushed out, sterilize the lines by a solution of calcium or sodium hypochlorine of 50 parts per million of chlorine. Open and close all valves while the system is being chlorinated. After the sterilizing agent has been applied for 24 hours, test for residual chlorine at the ends of the lines; if less than 5 parts per million is indicated, repeat the sterilization process. When tests show at least 5 parts per million of residual chlorine, flush out the system until all traces of the chemical used are removed.

15A.6 INSULATION.

- A. General. Prior to the application of any insulation, piping systems shall be checked and found free of leaks.
- B. Hot Water Piping. 1/2" fiberglass low pressure insulation, 1/2" PPG fiberglass, or 3/4" Johns-Manville fibrocel covering. Cover fittings with plastic insulating cement to full thickness of adjacent pipe coverings and finish with standard white fire retardant jacket.

15A.7 PLUMBING FIXTURES.

- A. The items specified herein are the types of fixtures to be furnished and installed, complete with all trim and fittings otherwise specified under the item. The model numbers referred to are those of the Crane Co., Standard or Kohler are acceptable where entirely comparable and where approved. Fixtures shall be white.

1. Water Closets:
3-107 Neu-Criterion elongated jet closet bowl, (2-bolt caps).
Beneke No. 523 SS/Ch. white, open front, solid plastic seat, less
cover, with self-sustaining check hinge.
Flange package.
 2. Urinals:
7-187 Cromwell 18" wide, wall hung urinal.
Sloan Royal #186-11 FYV flush valve.
WR-800 series steel reinforcing plate with bolts, nuts, washers, etc.
 3. Lavatories:
1-195-V Norwich 20 x 18 vitreous china.
8-2065 Capri supply fitting.
8-5222 P.O. plug w/perforated strainer.
8-5002 supplies w/stops.
8-5260 1-1/4" "P" trap.
 4. Service Sink:
7-564 22 x 18 enameled cast iron.
8-3756 faucet, pail hook, hose, end, backflow preventer.
7-620 "P" trap standard.
 5. Sink: *FOR ROOM 11B - ADD'l.*
Elkay PSR-3319 stainless steel, pacemaker.
LK-200 Tiara faucet, w/supplies and stops.
LK-335 strainer w/1-1/2" tailpiece and trap.
 6. Sink: *FOR ROOM 11BA - ADD'l*
Elkay PSR-1720 stainless steel, pacemaker.
LK-200 Tiara faucet, w/supplies and stops.
LK-335 strainer w/1-1/2" tailpiece and trap.
 7. Drinking Fountains:
Halsey Taylor WM-8-A.
 8. Shower:
8-2360 Capri concealed two-valve shower, integral stop valves,
Rainbeau head.
 9. Floor Drains:
Zurn Z-253C with N.B. top.
- B. Water Heater. Jackson GRE-52-T, 4.5 KW vertical, 150 psi, code rated
T and P relief valve.
1. Circulating Pump. B & G 60-15, 10 gpm @ 26' tdh, 1/4 hp, mechanical
seal.

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15A.8 EMERGENCY GENERATOR.

- A. A 75 KW emergency generator will be supplied and installed by others. The fuel and exhaust systems for the emergency generator will be furnished and installed under this section of the specifications.

SECTION 15B - AIR CONDITIONING, HEATING AND VENTILATING

15B.1 SCOPE.

- A. This Section covers the furnishing of all labor, materials, equipment and in performing all work in connection with the installation of air conditioning, heating and ventilating systems as shown on the Plans and herein specified. The work shall consist in essence of:
 - 1. Packaged roof top air conditioning units, air cooled.
 - 2. Ventilating Fans.
 - 3. Automatic control system.
 - 4. Motors.
 - 5. Starters.
 - 6. Ductwork and air distribution
 - 7. Insulation.
 - 8. Vibration specialties.
 - 9. Tests.
 - 10. Fees, permits and guarantee.

15B.2 GENERAL REQUIREMENTS.

- A. Before commencing work, the Contractor must verify measurements at the building site, and any differences will be submitted to the Architect for consideration and decision before proceeding with the work.
- B. Refer to other drawings for work required in connection with other trades.
- C. Equipment and materials must be new and free of defects. Before placing orders for equipment, submit to the Architect a list of the equipment the Contractor proposes to use, complete enough in detail for checking. Submission of equipment and material lists for approval must be made complete all at the same time.
- D. Substitutions: When a particular product is specified, it shall be considered as a standard basis of bidding. Other products equal in all respects may be substituted when approved by the Architect. Under no circumstances will the Architect be required to prove that an item proposed for substitution is or is not of equal quality to the specified item.

- E. Install work so that the maximum clearances will be obtained. If it becomes necessary to change the runs of ductwork or the location of any outlets in finished spaces such changes shall be approved by the Architect.
 - 1. The Drawings indicate the general runs of all ductwork, refer to the drawings of other trades for clearances required for work of such trades, and so run the work as not to reduce headroom or clearance established unless definitely instructed to do so by the Architect.
- F. Make all required tests in the presence of the Architect. Provide 24 hours notice to the Architect prior to testing final operating tests. All tests will be performed by competent personnel of the Contractor. Perform such operating tests as may be necessary to determine whether the work complies with the specifications.
- G. Furnish the Owner three bound copies of all Operation Instructions, Maintenance Instructions, Literature and Information pertaining to all equipment.
- H. Electrical Work. Work under this section of the specifications includes providing all motor starters for all motors provided under this section of the specifications. Provide all control items and wiring diagrams required for this equipment. Electrical items furnished must conform in all respects to the requirements covered under the Electrical Section of the Specifications. Refer to this section for voltages and characteristics of motors furnished under the Air Conditioning Section.
- I. Guarantee. In addition to the guarantee as set forth in the General Conditions of these specifications, this Contractor shall also guarantee the following:
 - 1. Any guarantee extended by the manufacturer for more than the one called for in the General Conditions shall be turned over to the Architect.
 - 2. The Contractor shall guarantee that the supply system will handle the specific amount of air as called for, distributed through the system against working conditions in the building, and there shall not be a variance of more than three (3) percent either in volume of air or power consumed.
- J. Instructional Period. Provide the services of a direct factory service representative at the job (beginning at or soon after the date of start of beneficial use) for two consecutive eight-hour days for the express purpose of instructing the Owner's representatives in the operation, maintenance and service of the air conditioning equipment.
- K. Cleaning Up. The Contractor shall at all times keep the premises free from accumulation of waste materials and rubbish of same, shall remove this refuse from within and around, shall also be removed, leaving the site of his work "Broom Clean".

- L. Waterproofing. Wherever any work done unse this Contract has to pierce any waterproofing, this work shall be done with care, and after the part piercing the waterproofing has been set in place, the opening made for this purpose shall be sealed and made absolutely watertight to the satisfaction of the Architect.
- M. Cutting and Patching. The Contractor shall cut all openings, chases and trenches required for the introduction of his work, and equipment in the building, doing all backfilling, repairing of floors, walls, etc., damaged by such cutting. All work done under this heading shall conform in every respect to the finish and quality of work done and materials used respectively in the building.

15B.3 EQUIPMENT.

A. Packaged Roof Top Multizone Units:

1. General. Self-contained electric cooling/electric heating multizone units specifically designed for rooftop installation mounted on a curb supplied by unit manufacturer. Each zone shall be able to heat or cool independently of requirements of other zones. Compressor shall be capable of unloading in steps of approximately five tons to follow variations in cooling loads. Hot gas bypass shall be used to maintain a minimum suction temperature at loads below minimum compressor capacity step. All outdoor air for ventilation must pass through a cooling coil and be cooled and dehumidified whenever mechanical cooling is operating. Unit shall be labeled by UL as a total package.
2. Cabinet. The unit frame shall be constructed of 6000 series aluminum extrusions. Panels shall be constructed of galvanized steel, bonderized and finished with a baked enamel finish. All panels requiring insulation shall be constructed of two separate panels filled with insulation. All side panels shall have quick release fasteners and shall be sealed against weather and air leakage by the use of refrigerator door type gaskets. All top panels are to be easily and individually removable for complete access of all components from top as well as sides of unit; shall be fully gasketed to prevent air and water leakage and be able to support the weight of a 250-lb. man walking on top of unit.
3. Cooling. The refrigerant circuit shall include an accumulator, shut-off valves for compressor suction and discharge, liquid line, and hot gas line. Filter-drier, and crankcase heater shall be furnished. Unit shall have serviceable hermetic compressor.
4. Heating. Each zone module shall have electric resistance heater assembly and include circuit breakers, automatic resetting switches for primary thermal protection and heat limiters for secondary thermal protection.

15B-3

5. Electrical Controls. Unit shall be equipped with a time-delay device to prevent short cycling of compressors and ensure staged starting of dual compressor units. Head pressure control with low-ambient starting capabilities shall be furnished. All internal control wiring shall not be over 115 volts. All external control wiring shall be 24 volts. Factory-installed circuit breakers for power and control circuits shall be suitable for use as disconnect switches. A 350-wa, 115-volt convenience outlet shall be part of the main control panel. All relays shall be the plug-in type for reliability and ease of maintenance. In the event of a main blower failure, the complete unit shall be shut down electrically.
6. Filters. 2-in. low-velocity filters shall be used.

B. Packaged Rooftop Single Zone Unit:

1. General. Unit shall be of a one-piece air-to-air electric cooling and electric heating unit and shall be mounted on a full perimeter roof curb.
2. Unit cabinet shall be constructed of galvanized steel, bonderized and coated with baked enamel.
3. Compressor System. The unit shall contain serviceable hermetic compressor with service valves, suitable vibration isolators, crank-case heater, sight glass and filter-drier. Coils shall be aluminum plate fins mechanically bonded to copper tubes.
4. Fans and Motors. The indoor air fans shall be of the forward-curved centrifugal class 1 type, belt driven. The outdoor air fan shall be of the propeller type, directly driven inherently-protected motor.
5. Heater assembly shall include circuit breakers, automatic resetting limit switches and heat limiters for primary and secondary over-current and thermal protection.
6. Safety Controls. Cooling section shall be protected by: fusible plug, low and high pressurestat, compressor motor overloads and a timing device which will prohibit the compressor motor from being subjected to starting current more than once every 5 minutes. Unit connections. Heating and cooling power wires in the unit shall be powered by single-point terminal connections. All utility connections shall be routed thru bottom of unit. Alternate openings in sides of unit shall also be provided.

C. Ventilation Fans:

1. General. Each fan shall be [REDACTED] rated. All fans of the same type shall be of one manufacturer.

D. Starters:

1. This Contractor to provide starters for all motors furnished under this section.

25X1A6a

2. All starters for motors 1/3 HP or less will be across-the-line type with on-off push buttons. Allen-Bradley Bulletin 600. Open type, suitable for mounting on standard electric switch box to be used where applicable, unless otherwise noted on the drawings.
3. All starters for 1/2 HP and up, unless otherwise noted, will be Allen-Bradley Bulletin 709 for Form 3, with control circuit transformers, fused secondary and auxiliary contacts, ITE, or Allis-Chalmers starters are acceptable.

15B.4 MATERIALS.

A. Sheet Metal:

1. Ductwork:

SEE ADD'D WORK. ADD. #1, PG. 3.

- (a) General. Furnish and install all air ducts shown on drawings. The sheet metal shall be galvanized iron, constructed and braced in accordance with standards out-lined in the latest Edition of the ASHRAE Guide. Sheet metal must be tight and free from rattles.

- (b) Gauges of Galvanized iron:

0" to 12" greatest dimension No. 26 U.S. Gauge.
13" to 30" greatest dimension No. 24 U.S. Gauge.
31" to 60" greatest dimension No. 22 U.S. Gauge.
61" to 90" greatest dimension No. 20 U.S. Gauge.

Each sheet of metal used in construction of ductwork must be factory labeled with the gauge of metal. Cross break uninsulated ductwork over 18" in any dimension.

- (c) All connections to and from the air conditioning units shall be made by Ventfab collars not less than two inches long, secured by peripheral strap irons.
- (d) Horizontal ducts shall be hung at intervals not exceeding eight feet. Hangers shall be 16 ga. x 1" band iron on ducts up to 18 inches and 12 ga. x 1" up to 30' and 12 ga. x 1-1/2" on ducts 31" and larger. All hangers shall extend down and fasten underneath the duct in addition to the side fastenings. Hangers shall fasten to the structure with bolts.
- (e) Ducts hung below concrete slabs to have hangers set before concrete is poured, or hung from Phillips Drill Co., "Redhead" self-drilling screw anchors. All rubbish and trash shall be removed from the ducts before installing grills and setting dampers.

- (f) Furnish dampers and splitters wherever necessary for proper regulation of air distribution system. The dampers shall be located so as to be adjustable after work is completed. Construct splitters one gauge heavier than ductwork, securely attached to the duct. Provide a set screw, locking device for each splitter or damper. On insulated ducts, place locking device on a bracket so that the set screw is on the surface of insulation. Use hardware manufactured by Young Regulator or Ventfab, where rods pierce duct, cap with 609 damper and bearing.
- (g) Provide turning vanes in ductwork where radius is less than 1-1/2 of width. Construct vanes of galvanized steel, one gauge heavier than the duct, securely riveted to top and bottom.
- (h) Insulation Shields. Provide sheet metal shields for insulation between insulation and pipe supports.
- (i) Sealed Joints. All exhaust, supply and return duct systems to have joints sealed with 4" wide tape (Permece1 No. 691-AF), applied with adhesive to make air tight joints. Seal and waterproof all joints in exterior ductwork with Benjamin Foster Co. No. 60-35 fire resistant, aluminum pigmented mastic.
- (j) Provide in the duct systems, holes required for the installation of pipe, hangers, conduits, etc., where they pass through ducts and only as authorized by the Architect. Holes are to be cut to the diameter and in locations as approved.
- (k) Waterproof all sheet metal connections to outside by soldering or caulking the seams with mastic.
- (l) Furnish and install NBFU approved fire and smoke dampers where shown on the drawings, at fire walls and barriers and otherwise as required by applicable codes. Provide duct access doors for accessibility to fire dampers.
- (m) All ductwork, dampers and air distribution devices shall be installed so as to be free of rattles, vibrations and excessive air noises.
- (n) Access Panels. Provide and install access panels for all valves, dampers, control devices, etc. Use Milcor, Style K in plaster ceilings and walls and style M in masonry and tile walls. Unless otherwise indicated on the drawings, access panels in ceilings shall be 12" x 12".

B. Air Distribution:

1. Supply Outlets-Ceiling (Rectangular):

- (a) Louver face ceiling diffusers shall be Tuttle & Bailey, AM with removable cores and peripheral gasket for surface mounting and of the pattern arrangement shown on the plans. Provide opposed blade volume control dampers for all diffusers.

(b) Where grille take off is perpendicular to duct, provide factory fabricated deflectrol or air scoop.

(c) Frames and cores shall be aluminum.

2. Return Air and Exhaust Registers and Grilles:

(a) Sidewall type shall be of the inclined, horizontal blade type of anodized aluminum. Provide opposed blade, key operated, volume control which may be made of steel. Install return and exhaust registers with blades sloped to prevent looking into space behind.

(b) Manufacturer shall be Tuttle & Bailey, Barber Colman, or Titus.

(c) Provide all grilles with felt or rubber gaskets cemented to the back face.

C. Insulation:

1. Ductwork:

(a) Ductwork. Insulate all air conditioning sheet metal ductwork with 1" of rigid insulation. Insulation shall be Fiberglass type SF (4 lb. density) Johns-Manville Spintex 414 VS (6 lb. density) applied in strict accordance with the manufacturer's recommendations. All joints and ends shall be properly vapor sealed, using mastic; then apply 4 inch strips of glass fabric firmly embedded in the mastic.

15B.5 TESTING.

A. Balance and testing shall not begin until the system has been completed and is in full working order or at the direction of the Engineer, any part thereof shall be placed into operation for the purpose of testing and balancing. The Mechanical Contractor shall put all heating, ventilating, and air conditioning systems and equipment into full operation and shall continue the operation of same during each working day of testing and balancing.

1. Test, adjust and record all blower rpm at design requirements.
2. Test and record all motor full load amperes at balance point.
3. Test and record all system static pressures, suction and discharge.
4. Test and record entering air temperatures (db heating and cooling) all coils.
5. Test and record entering air temperatures (wb cooling) all cooling coils.
6. Test and record leaving air temperatures (db heating and cooling) all coils.

7. Test and record leaving air temperatures (wb cooling) all cooling coils.
8. Adjust all main supply, return, and outside air ducts to proper design cfm.
9. Adjust all zones to proper design cfm, supply and return.
10. In cooperation with the control manufacturer's representative, set adjustments of all controllers to operate as specified, indicated and/or noted.

15B.6 AUTOMATIC TEMPERATURE CONTROL SYSTEM.

- A. The automatic control system shall consist of an electric electronic system furnished by the Contractor with all wiring by the Electrical Contractor under the supervision of this Contractor. A complete temperature control and power wiring diagram suitable for the A.C. units furnished, shall be submitted for approval. Heat type actuators are not acceptable. At completion of the work, the manufacturer shall certify in writing to the Architect that all controls have been adjusted or calibrated and are operating in accordance with design requirements.
- B. Firestats shall be provided in the supply and return ducts for each A.C. unit and shall be constructed to N.B.F.U. standards and so approved.
- C. *SEE ADD.#1, PG. 3. FOR ADDED WORK.*

SECTION 16A - ELECTRICAL

16A.1 SCOPE.

SEE ADD. #1, PG. 3 FOR ADD. WORK - ELECTRICAL SERVICE TO GAS PUMP.

- A. Furnish and install all electrical work shown on plans including all labor, materials and incidental items required for a complete operating installation.
- B. Air conditioning, mechanical, plumbing and other control systems are specified under Section 15.

16A.2 GENERAL.

- A. The General and Supplementary General Conditions and the General Requirements apply to this Section.
- B. The following Codes and Industry Standards shall be complied with:

1. National Electrical Code 1971.

2. [REDACTED] Building Code, Chapter 45.

- C. The regulations and specific requirements of:

1. [REDACTED] Power & Light Company.

2. [REDACTED] Telephone Company

16A.3 SERVICE AND SERVICE CHARACTERISTICS.

25X1A6d

- A. Provide underground conduits to pad mount transformer in accordance with requirements of the [REDACTED] Power & Light Company and details shown on the drawings.

- B. Secondary service distribution at 120/208 volts, 3 phase 60 Hertz.

25X1B

- C. Provide underground conduits for [REDACTED] Telephone and Telegraph Company service entrance, backboards and outlets as indicated. Individual outlets will be stubbed up to ceiling space and terminated with a bushing. Outlets in rooms 105, 106 and 107 shall be run in underground raceways direct to telephone room. Each outlet shall be 1 inch.

16A.4 TESTS AND INSPECTIONS.

- A. All work will be open to inspection by the Architect or his representative at all times. Until final acceptance of the installation in its entirety, the condition and care of all material and equipment is the responsibility of the Contractor.

- B. The final inspection and tests shall be made only after the Architect is satisfied and that the work described in these specifications has been completely installed in accordance with all contract requirements. The acceptance of the work shall not in any way prejudice the Owner's right to require the replacement of any defective materials or workmanship. The Contractor is held liable to make repairs to the work of any other trades that may be defaced or damaged in making the necessary repairs.
- C. This Contractor shall provide instruments, special apparatus, expert service and make all necessary tests as determined by the Architect to show that the system is properly installed to meet all requirements of capacity, quality and completeness called for by the plans and specifications. These tests shall be witnessed by the Architect or his representative.

16A.5 TEMPORARY LIGHT AND POWER.

- A. A temporary light and power system shall be furnished, installed and maintained by this Contractor. The installation shall be extensive enough to provide for the needs of the General and all Subcontractors on the job.

16A.6 MATERIALS.

- A. All materials shall be new, in original packaging and made in the United States. Underwriters labels are required where applicable.
- B. Boxes.
 - 1. Galvanized steel.
 - 2. Gang type where more than one trim device at same location.
 - 3. Square corner specially designed type for masonry or tile wall use.
 - 4. All boxes concealed except in machine room areas.
 - 5. All boxes exposed to weather shall be cast type with conduit hubs and cast fer alloy covers.
 - 6. Approved manufacturers are Steel City, Appleton and Raco.
- C. Raceways.
 - 1. Raceways shall be heavy wall threaded galvanized or sheradized conduits, galvanized or sheradized E.M.T. and where specifically indicated on the drawings P.V.C.
 - 2. Raceways shall be products of Triangle Republic Steel, National Electric Products or Walker.

3. Underfloor duct, boxes, fittings and accessories shall be provided as indicated on the drawings. Floor ducts and fittings shall be standard products manufactured by Walker/Parkersburg. Alarm and 120 volt circuits require a #2 duct, telephone a #4. Provide and install where directed twenty each outlets for duplex receptacles and telephones. Outlets shall be Spectrum Series, colors as selected by the Architect.

D. Conductors.

1. All conductors shall be 99% pure electrolytic copper with 600 volt insulation. All sizes to #10 AWG shall be type TW solid. Size #8 and larger shall be type THW stranded. Individual tap conductors for fixtures may be TFF #18, control circuits may be #14. The minimum size wire for any other use is #12. Circuit wiring in continuous row fluorescent lighting is to be #12 THW.
2. Wire shall be manufactured by General Cable, Okonite, Phelps-Dodge, or Triangle.

E. Wiring Devices.

1. Type, size and styles indicated on plan. Plates 040 stainless steel in toilet rooms and kitchen, ivory plastic for general use. Certain rooms require finish as selected by Architect.
2. Specification Grade devices made by Bryant, Pass and Seymour, Slater and Sierra are acceptable.

F. Lighting Fixtures.

1. Furnish and install all lighting fixtures and lamps as listed in the "Lighting Fixture Schedule" on the drawings.
2. Ballasts shall be Rapid Start, H.P.F., Class "P" CBM ETL certified with an "A" sound rating - Fixture manufacturer is responsible for the proper "P" ballast for each fixture. Ballasts shall be General Electric, Jefferson Advance or Universal.
3. All recessed fixtures shall be compatible with the type of construction and include all hardware, hangers, plaster frames, etc., required to make a finished installation.
4. All plastic, diffusers 100% virgin acrylic.

G. Safety Switches.

1. Safety switches shall be heavy duty type, quick make and quick break with shielded line terminals and visible blades.

2. Enclosures shall be Nema 1 or III as locations may require and fused as noted in Panel Schedules. Where two switches are in series on a feeder or motor circuit the switch at the motor or other type equipment shall be non-fused.

H. Panelboards.

1. Panelboards shall be dead front safety type equipped with thermal-magnetic molded case circuit breakers of frame and trip ratings as shown on the schedule.
2. Circuit Breakers. Circuit breakers shall be quick-make, quick-break, thermal-magnetic, trip indicating, and have common trip on all multipole breakers. Trip indication shall be clearly shown on the breaker handle taking a position between "ON" and "OFF" position when the breaker is tripped.
3. Panelboard Bus Assembly. Bus bar connections to the branch circuit breakers shall be the distributed phase or phase sequence type. Three phase 4-wire bussing shall be such that any three adjacent single pole breakers are individually connected to each of the three different phases in such a manner that 2 or 3 pole breakers can be installed at any location. All current carrying parts of the bus assembly shall be plated. Mains ratings shall be as shown in the panelboard schedule on the plans.
4. Cabinets and Fronts. The panelboard bus assembly shall be enclosed in a steel cabinet. The size of the wiring gutters and gauge of steel shall be in accordance with NEMA Standards Publication No. PBI-1957 and UL Standards No. 67 for panelboards. The box shall be fabricated from galvanized steel or equivalent rust resistant steel.

Fronts shall include door and have flush, brushed stainless steel, cylinder tumbler-type locks with catches and spring loaded door pulls. The flush lock shall not protrude beyond the front of the door. All panelboard locks shall be keyed alike. A circuit directory frame and card with a clear plastic covering shall be provided on the inside of the door. The directory card shall provide a space at least 1/4" high x 3" long or equivalent for each circuit. The directory shall be typed to identify the load fed by each circuit.
5. UL Listing. Panelboards shall be listed by Underwriters Laboratories and bear the UL label.
6. All bus bars copper silver plated.
7. Main Circuit Breakers. Type and size noted on drawings. I.T.E. and Westinghouse are approved alternates in same class.

8. Panel 16A-5. Provide ground busses in Panels MDP, PP1 and PP2. Ground bus in MDP shall be 1/4" x 1" x 6" minimum with lugged terminals for 2 #4 and 1 #2/0 conductor. Ground Busses in Panels PP1 and PP2 shall have provision for terminating 12 - #12 wires, minimum size 1/4" x 1/2" x 6". Additional gutter space shall be provided in panel can for these ground busses. Main ground bus conductor (2/0) in MDP shall be connected to earth ground with a maximum resistance of 10 ohms.

I. Fire Alarm System.

1. Furnish and install an Underwriters Laboratory approved non-coded annunciated, electrically supervised, five zone fire alarm system as shown on the drawings and described herein.
2. Operation. Operation of any fire alarm station or detector shall sound a continuous alarm on all signals including the trouble bell until the operated station and control panel are restored to normal operation. A visible indication is to be recorded to the annunciator and a signal transmitted by telephone line to the central station.
3. Control Panel. The control panel shall incorporate the necessary components and wiring required for the proper operation and control of the station and bell circuits, the power supply and the supervisory and trouble bell features. In addition to the required working circuits, the panel is to be equipped with an alarm test switch; a voltmeter switch, audible signal control, jack and test leads. All station and bell circuits shall be provided with trouble indication pilot lamps. All wiring shall be in accordance with manufacturer's requirements. The fire alarm panel is to be Edwards 6500 series with S476-12 annunciator. Provide remote trouble indicator next to annunciator.
4. Manual stations shall be U.L. approved, non-coded, local non-interfering type with normally open contacts. Stations to be Edwards 270 DP0.
5. Detectors shall be Edwards 281 with provisions for annunciator indication.
6. Alarms. General alarm signals shall be vibrating horns, Edwards flush #880.
7. Fire Alarm - General. The Fire Alarm System supplier shall include in a total price bid a complete tested and operating system, including also maintenance and any necessary repairs and full central station service for a period of twelve months from date of acceptance. On site response to an alarm shall be within a maximum time period of ten months.
8. Approved central station security systems installers are Systems for Security, Inc., and A.D.T. Security Systems.

16A.7 EMERGENCY GENERATOR.

- A. A 75 KW 120/208 Volt 3 phase, Diesel engine powered emergency generator will be furnished by others.
- B. This Contractor will accept delivery on site of this generator, provide all necessary labor and equipment to remove same from its transport and set it in place in the electric room.
- C. Wire generator to an Asco #940 - 260 ampere accessory group 6 3 Ø 4 wire transfer switch which shall be provided by this Contractor.
- D. Connect batteries, battery charger, engine generator controls which will be furnished with generator.

16A.8 EXECUTION OF WORK.

- A. General. All work shall be installed in a workmanlike manner, presenting a neat mechanical appearance upon completion. The type and scope of work requires the maximum cooperation of all trades and this Contractor is to so plan, schedule and install his work so that the job will progress in an orderly manner. Particular attention is to be given to the layout and installation of sleeves, chases, inserts, and other similar preparatory work. No cutting of any structural members is to be done without the approval of the Architect.
- B. Installation of Wire and Cable.
 - 1. All wire shall be color coded throughout, using colored conductors for branch circuit wiring and plastic tape markers to identify the phases on feeders and large motor circuits.
 - 2. All joints and splices #6 and smaller shall be made with solderless positive pressure connectors covered with nylon covers. Wires #4 and larger shall be spliced using copper splicing sleeves designed to make positive bond with the wire by applying hydraulic pressure to same with tools specifically designed for the sleeves used. All splices shall be taped with minimum of two layers of plastic H.V. tape over sufficient rubber tape to build insulation to the original thickness.
 - 3. In pulling cables or conductors into raceways, use approved lubricants and keep tension cables within the manufacturers recommendations for the size, and type and length concerned.
 - 4. Conductors may be combined for homeruns to the panels, but no more than 2 - 4 wire 3 phase circuits are to be installed in any one raceway.
 - 5. Cable support boxes and cable supports are to be installed in all risers as required by the N.E.C.

C. Installation of Raceways.

1. All metallic raceways installed underground are to be thoroughly cleaned of any grease or rust and then protected by a brush application of bitumastic paint. This paint shall be specifically designed for pipe protection and shall be applied so that the thickness of coat is approximately 15 - 18 mils. If the paint is applied while conduit is in the ground, use the glove method for satisfactory coverage. Touch up to original protective thickness any flaws made by wrenches, tools, etc.
2. Non-metallic conduits shall be enclosed in a concrete envelope.
3. All underground raceways shall be installed at a minimum of 24" below finish floor or grade.
4. Conduit and tubing shall be concealed in floors, walls and ceilings, except for roof area machine rooms. Conduits installed in the concrete floor slabs are limited to a maximum size of 3/4".
5. Raceways to outlets concealed in the partitions are to be installed vertically and be concealed in the wall construction.
6. Exposed conduits are to be installed with runs parallel or perpendicular to walls and structural members and properly aligned when run vertically.
7. Panel-stub-out conduits - 3/4" conduits, one for each 3 spare circuits in each panel are to be installed as vertical runs and stubbed out into the ceiling areas at each panel location. Stub-outs shall be terminated at a readily accessible location for future extensions.
8. Expansion fittings are to be provided in all conduits crossing expansion joints throughout the building.
9. Raceways to motors and other equipment with inherent vibration, for the last 18 inches of the raceways, shall be flexible metallic raceway, with polyethylene sheath similar to sealtite used in damp, wet and dusty locations.

D. Outlets.

1. Outlets shall be installed in the locations shown on the drawings. This Contractor shall study the general plans in relation to the spaces surrounding each outlet in order that his work may fit the other work required by other sections of these specifications. When necessary, he shall relocate outlets so that when fixtures or other fittings are installed they will be symmetrically located according to room layout and will not interfere with other work or equipment.

2. Boxes shall be installed in a rigid and satisfactory manner. Fixture outlet boxes on ceiling or in concrete and wall outlets shall be appropriate to the use and shall be fitted with open covers set to come flush with the finished surface. Wall outlet boxes shall also meet these requirements.
3. Boxes in Tile or Terra Cotta partitions shall be square cornered boxes made specially for this purpose. They shall finish square with the face of the wall. Other boxes shall be 4 inch square for wall receptacles and switches with appropriate covers, and concrete boxes and covers where installed in the concrete slab. Where only one conduit enters a box so called handy boxes may be used.
4. Pull Boxes. Pull boxes and junction boxes may be provided in such locations required to reduce the length of cable pull and the number of elbows between outlets. Such boxes shall not be placed in finished spaces without the approval of Architect. Pull boxes in finished spaces shall be fitted with overlapping screwed on cover finished to match the finish of the wall or ceiling. Pull boxes in exposed work shall have cover the same dimensions as those of the box. All boxes shall be of the gauge and size required by the N.E.C. for the particular size and usage. All welds shall be ground smooth, and boxes given a prime coat of zinc chromate or other approved prime.

E. Panels - Switchboards.

1. Panelboards shall be flush or surface mounted as shown on the drawings. The cans shall be set vertically true and finish even with the wall surface. Where more than one panel is installed at the same location they shall be so installed that the trims when placed will just touch each other.
2. Wall mounted switchboards and panelboards shall be mounted on heavy electrical channels which will support the cans with channels which will support the cans with an air space between the can and the wall. Size of channel, anchors, bolts and spring washers shall be of adequate size for the particular part being mounted.

F. Equipment and Control Wiring.

1. This Contractor will connect all electrical equipment to be installed on the job.
2. The Mechanical Contractor will furnish approved prints showing details of his control wiring requirements. Refer to mechanical drawings for full details and specific locations of items involved. All starters and control devices are furnished by the mechanical contractor.
3. The Plumbing Contractor will also furnish all required approved prints so that this contractor can readily connect his pump, controls, etc. Refer to mechanical drawings for full details, etc. He will also furnish all starters and control devices.

4. This Contractor will furnish all pipe, wire, incidental fittings and junction boxes, switches, etc., necessary to connect all motors and control elements.
5. When all equipment is connected this Contractor shall cooperate with the other trades in performing any electrical work or functions necessary to properly test the equipment operationally.
6. Mounting Heights. Outlets shall be installed in keeping with architectural details; unless specifically noted otherwise all outlets shall be located as follows:

| | |
|------------------|---|
| Switches | 4'-0" to center of box |
| Receptacles | 1'-0" to center of box plates horizontal |
| Telephone | 1'-0" to center of box |
| Toilet Fixtures | 6" above mirror. |
| Wall Exit Lights | Above door or 7'-0". |

SECTION 16B - SECURITY SYSTEM WIRING

16B-1 The Electrical Contractor shall provide and install all raceways, outlet boxes, miscellaneous fittings and accessories necessary to complete a security system with devices and features incorporated in these specifications and indicated on the plan. The security system contractor will furnish necessary wire to be installed by the electrical contractor in accordance with approved wiring diagrams and specific outlet locations.

16B-2 SECURITY SYSTEM - BASE BID.

- A. Provide and install all wire, devices, equipments and accessories necessary to complete a security system as indicated on the plan and described in this specification.
- B. The system shall be U.L. Laboratories approved, supervised and directly connected to an approved central station. On site response to an alarm shall be within a maximum time period of ten minutes.
- C. Ultrasonic System - Motion detectors shall be omni directional paired crystal type ultrasonic transmitters and detectors with uniform sensitivity to human intrusion and capable of allowing no more than 4 (25 inch) steps in a time period of 4 seconds.
- D. Master Control unit shall be solid state, with integral battery charger and nickel cadmium battery capable of a minimum of four hours operation on failure of A.C. power.
- E. Day-Night control located in room 111 to activate or deactivate system.
- F. Interface Controls - As required for central office connection.
- G. Intrusion alarm bell, weatherproof, tamper proof screws and switches, ten inch 6 volt D.C. bell.
- H. Door contacts shall be high security type, balanced magnetic switches.
- I. All units shall be provided with tamperproof switches and solid state circuitry.
- J. Provide telephone line security on Day-Night control.

16B-3 ALTERNATE BID.

- A. Requirements are the same as specified for the Base Bid with the following exception.
 - 1. Vault intrusion detectors shall be microphonic type instead of ultrasonic.

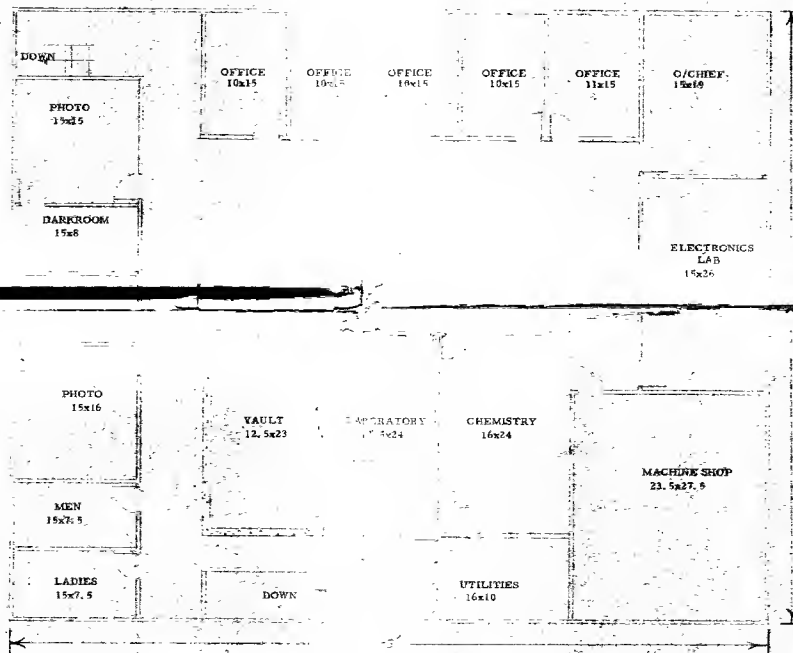
16B-1

- B. General. The Security Equipment supplier shall include in a total price bid a complete tested and operating system, including also maintenance, any necessary repairs and full central station service for a period of twelve months from date of acceptance.
- C. Approved central station security systems installers are Systems For Security, Inc., and A.D.T. Security System.

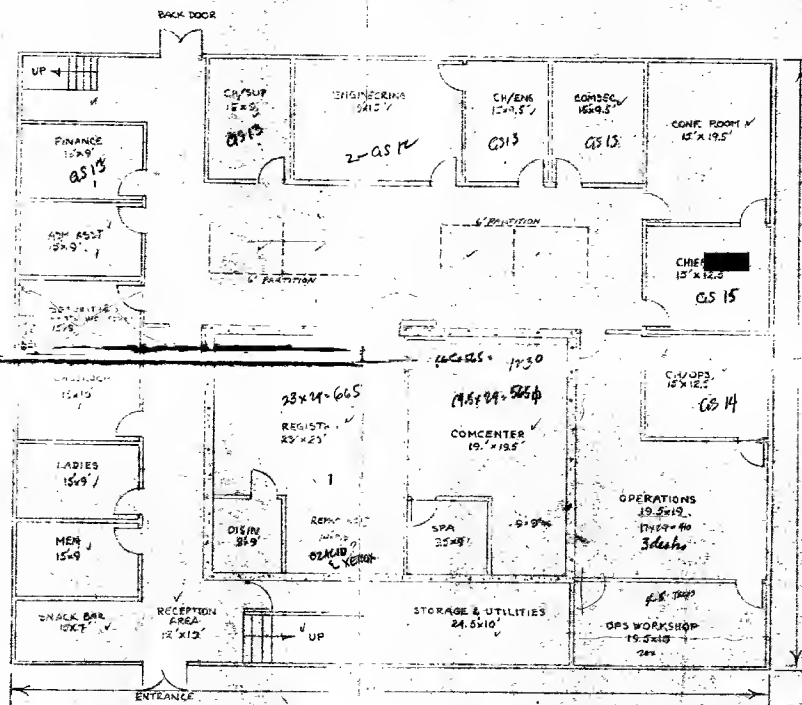
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| PROPOSED 2ND FLOOR | |
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| Scale | 1/8" = 10' |
| Date | 24 OCT 72 |
| By | JJC |
| Check | |
| Approved | |


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17 people. actual count.

70K89 = 6750 ft.

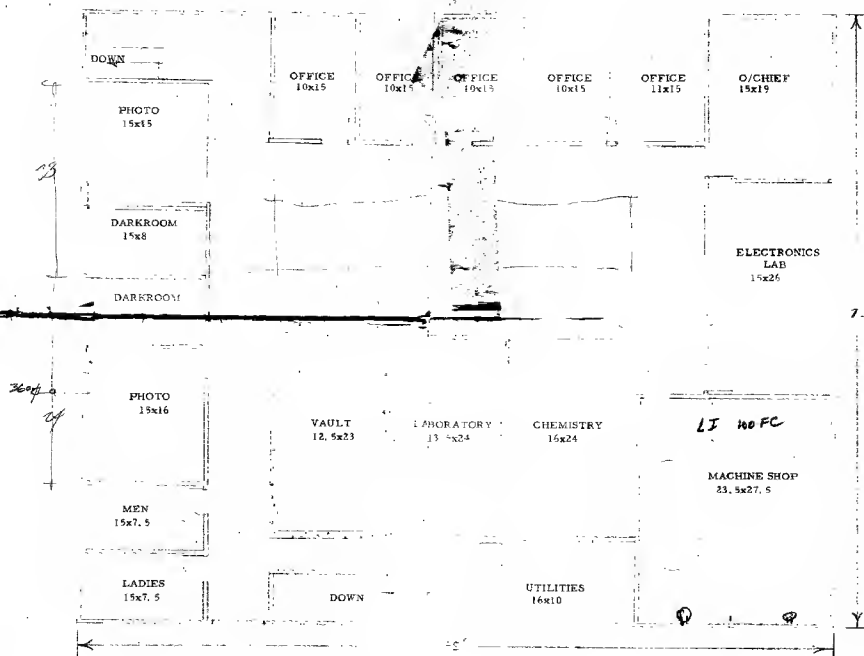
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8x48 =
720 =
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620
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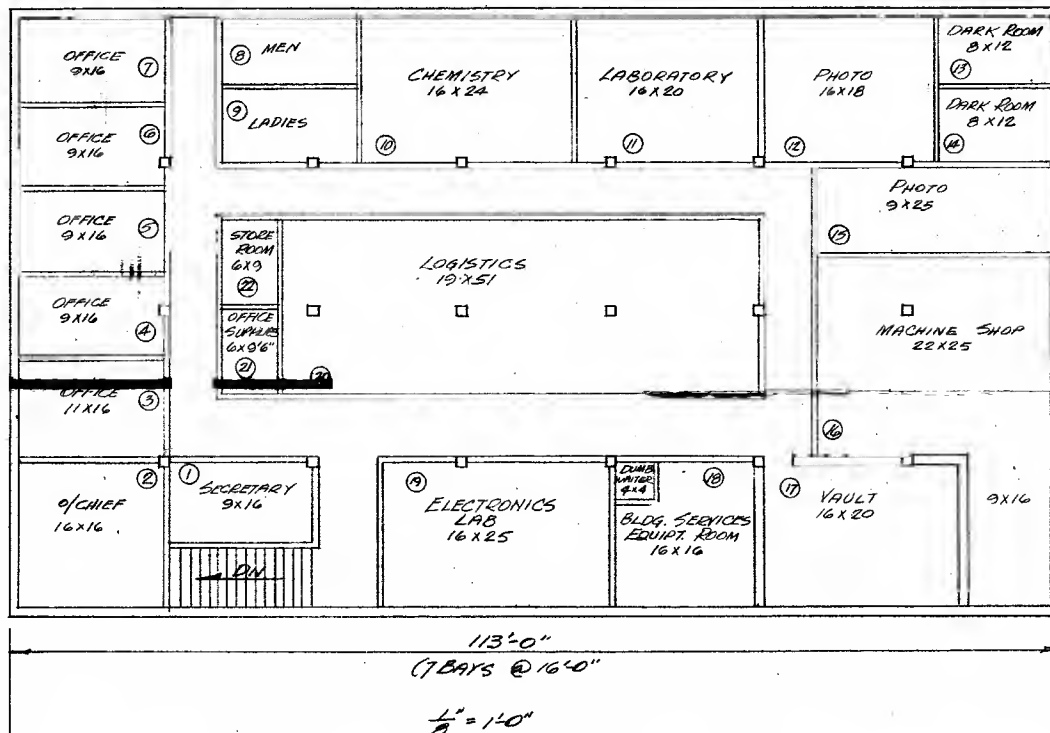
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| 2ND FLOOR | | |
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